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# An integrated approach to teaching Aegean archaeology and archaeological science

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BOSTON UNIVERSITY  
GRADUATE SCHOOL OF ARTS AND SCIENCES

Thesis

**AN INTEGRATED APPROACH TO TEACHING AEGEAN ARCHAEOLOGY  
AND ARCHAEOLOGICAL SCIENCE**

by

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B.A., Dickinson College, 2010

Submitted in partial fulfillment of the  
requirements for the degree of

Master of Arts

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**AN INTEGRATED APPROACH TO TEACHING AEGEAN ARCHAEOLOGY  
AND ARCHAEOLOGICAL SCIENCE**

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**ABSTRACT**

Outlined here is a course that would serve as an introduction to archaeological science, specifically within the context of Aegean Prehistory. The main objective of this course is to expose students early in their archaeological careers to a variety of methods and questions, and to depart from the culture-historical perspective that typifies introductory survey courses. The class structure is equal parts lecture and discussion, moving between learning how the methods work and evaluating case studies. All graded assignments build on one another, guiding the students through designing their own research project. The ultimate goals of the assignments are to build key writing and professional skills, develop a basic understanding of research design, and to instill confidence that the student can contribute to the production of knowledge, whatever field he or she decides to pursue.

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## I. DISCUSSION

Particularly in North America, Aegean prehistory awkwardly straddles disciplinary boundaries, most often housed in classics, art history, or special interdisciplinary programs. In no small part due to the discipline's ties to classical studies and its history of Greek exceptionalism, Aegean prehistorians are often out of place in anthropology departments. On the other hand, classical programs that focus primarily on philology have little in common methodologically with the prehistoric archaeologist. This uncertain academic home can cause much anxiety, and as the field develops many Aegean archaeologists feel "both ignored by anthropologists and increasingly distant from the interests of classical colleagues" (Cherry et al. 2005, xvii). Celebrating the application of scientific methods in the service of larger social questions within the context of Aegean prehistory is one way to alleviate this "collective neurosis" (Tartaron 2008, 130), prove that Aegean prehistory has much to offer other disciplines, and move the field productively into the future. Here, I outline a class that integrates an introduction to Aegean prehistoric archaeology with an introduction to archaeological science. These are often taught as entirely separate courses, but my hope is that this approach will encourage a deeper and more holistic understanding of both topics.

As Tartaron points out, "Aegean prehistorians have had a long and fruitful relationship with the natural and physical sciences," with Heinrich Schliemann pioneering a multidisciplinary approach during his excavations at Troy (Tartaron 2008, 121). In the more recent history of the field, archaeologists have formed robust collaborations with geomorphologists, largely in the context of survey and landscape

archaeology. On the other hand, routine practices such as osteological analysis of human and animal remains have only come into their own relatively recently (Tartaron 2008).

There have been many suggestions for how Aegean prehistorians might bolster their appeal to those outside the discipline, such as to New World archaeologists, and even to literary critics, historians and scholars interested in modernity, and geographers (Cherry et al. 2005; Tartaron 2008). A focus on archaeological science can be a part of this endeavor in two ways. First, conducting a scientific archaeological project is inherently collaborative. Archaeological science goes far beyond simply incorporating the use of hi-tech equipment; it is the act of directly engaging with the natural sciences to ask an archaeological question. This can take the form of scientists being brought onto an archaeological project for active collaboration in the field, as is often the case with geomorphologists and geologists. The other place that collaboration occurs is within the laboratory. Many archaeologists are not trained in the intricacies of a specific technique, and must work closely with colleagues in the natural sciences to troubleshoot protocols or gain access to equipment. Additionally, a laboratory in the natural sciences is more often deliberately defined as a collaborative space. Archaeologists that enter these spaces are tasked with explaining why their project is interesting and meaningful to people outside of the social sciences, and are asked, in turn, to engage with questions outside the purview of archaeology. Those archaeologists who do have their own laboratories, or run all their own analytical tests, are more likely to be in frequent dialogue with botanists, zoologists, or geochemists.

If fostered, these individual collaborations will have new and exciting outcomes for all parties involved. Archaeological science can make unique contributions to current scientific and political discourse by addressing issues such as human responses to climate change and human impacts on the landscape and physical environment. Too often, however, archaeologists fall into the trap of understanding scientific techniques as a black box: send away the material, and get back answers. In our understanding and teaching of archaeological science, we must develop an appreciation not just for the answers that natural scientists can give us but also the process by which they come to these answers. Natural scientists are trained to formulate and test hypotheses, and archaeologists can greatly benefit from this practice of tightly designing research around a specific question. Due to the restraints of scientific techniques in terms of money, time, and in some cases archaeological material, these applications often *require* such an approach. Not only does this type of research force archaeologists to defend and think critically about what questions they are asking, the basic process is also the future of archaeology at large. The era of big digs is long over and archaeologists are increasingly conscious of both archaeology as a non-renewable resource and the merits of research that is designed to ask very specific questions. In Greece, where permits are scarce and the storage rooms overflowing, question-based research, especially which examines previously excavated material, is both an ethical and practical imperative.

## **Teaching Archaeology**

Arguing the significance of archaeology is far from just an Aegean problem; archaeology courses must all strive to offer relevant and valuable experiences to students regardless of whether or not they continue in the discipline. To address the changing face of archaeology and academia at large, in 1999 the Society for American Archaeology (SAA) outlined a set of seven principles to guide instruction in archaeology, particularly in higher education (Kamp 2014). The principles include teaching important concepts, such as (1) stewardship of the archaeological past, (2) the diversity of stakeholders, (3) the social relevance of the past, and (4) archaeological ethics and values; they also include the instruction of skills, charging archaeologists to teach (5) effective written and oral communication, (6) fundamental archaeological skills, and (7) real-world problem solving (Kamp 2014). In 2014, the SAA Committee on Curriculum undertook a survey of 98 syllabi in order to assess how well these principles were being implemented.

One of the major pedagogical problems that all archaeological programs face is how to effectively teach survey courses. In their survey the SAA Committee on Curriculum found that area courses “appeared to stress fundamental archaeological skills and real-world problem solving less than others,” a pattern they deem “predictable” (Kamp 2014, 30). They also found that the first principle, stewardship, was the least emphasized principle. This need not be the case, particularly not in area courses, and by incorporating these principles we can create more engaging and meaningful course material.

Area classes in particular tend to rely on the narrative prowess of the instructor to keep the material interesting and convey a story of cultural change. Even with a skilled professor, however, these courses run the risk of encouraging students to “memorize the story but [...] gain little understanding of how it is constructed.” (Sept 2004, 48). Jeanne Sept (2004) identifies this same problem in classes that are based on methodologies, but with students just memorizing a different set of facts. The main goal of integrating Aegean prehistory and archaeological science is to foster an interest not just in what happened in the past, but also an understanding of how that knowledge is constructed as a collaborative and historically situated process. This perspective not only makes for a more successful course pedagogically, it also is an important aspect of viewing oneself as a steward of the past.

### **Structure of the Course**

The main objective of this course is to expose students early in their archaeological careers to a variety of methods and questions, and to depart from the culture-historical perspective that typifies in introductory survey courses. The class structure is equal parts lecture and discussion, moving from learning how the methods work to evaluating case studies. Each week is organized around a larger question, and often associated with a particular time period. This syllabus is designed to meet on Tuesdays and Thursdays for an hour and a half. Most Tuesdays are dedicated to lectures explaining scientific methods, but also include time for discussing the reading. The readings assigned for Tuesdays are largely from the textbook, and are intended to

familiarize students with the major sites, finds, and theories associated with answering that week's question. The textbook I have chosen is *The Cambridge Companion to the Aegean Bronze Age*, edited by Cynthia Shelmerdine (2008). This book is ideal for this class, because it is written as an introductory text but is more concerned with explaining the major explanatory trends in the literature than it is with the "greatest hits." Each chapter is written by a different expert in the field and the volume especially addresses the economic and political history of the Aegean. Thursdays are devoted to class discussion focused on a pair of assigned case studies. Most of the case studies are articles that utilize a scientific method, or methods, and address the question of the week either directly or indirectly. Discussion is structured in such a way that students must synthesize all of the readings for the week and think critically about the arguments presented. Depending on the question, discussions will also wrestle with the potential social relevance of the past and with archaeological ethics and values (especially weeks 8 and 13). The themes of social complexity and an awareness of biases in interpretation will run throughout the class.

All graded assignments build on one another, guiding the students through designing their own research project. The ultimate goals of the assignments are to build key writing and professional skills, develop a basic understanding of research design, and to instill confidence that the student can contribute to the production of knowledge, whatever field he or she decides to pursue. The assignments do this by asking students to engage with material in a variety of different ways, including a reflective piece, an article review, and designing a research proposal. Additionally, the students must communicate

their ideas in both written and oral formats. The process of working on a project throughout the semester should also engender a sense of responsibility, and an understanding of how to appropriately and ethically interact with the archaeological record.

This course is intended to be a 200- or 300-level class, depending on the criteria of a given university. Students should have a basic understanding of their major, and be more-or-less comfortable writing college research papers. They need not, however, be archaeology majors. The cognitive and professional skills taught in this course are designed to be applicable to students from a variety of backgrounds and aspirations.

## II. SYLLABUS

### **Introduction to Aegean Prehistory and Archaeological Science**

#### **AR 3XX**

Instructor: Erica Pitcairn ([pitcaire@bu.edu](mailto:pitcaire@bu.edu))

Class Times: Tuesday and Thursday

Room: xxx

#### **Course Description**

Focusing on the rise of Minoan and Mycenaean societies, Aegean prehistory has always occupied a strange space between Classical Studies, Anthropology, Art History, and Archaeology. This course will examine how studying the cultures of the Aegean can contribute to broader conversations, from the spread of agriculture to the development of complex societies. Specifically, it will deal with how scientific methods and perspectives can help scholars productively straddle disciplinary lines.

#### **Course Goals**

In terms of content, this course intends to introduce you the major sites and cultures of Aegean prehistory, primarily the Mycenaeans and Minoans. While not a traditional survey course, by the end of this semester you should be reasonably familiar with the major themes that have concerned Aegean Prehistorians.

This course also intends to teach you how to critically interact with a wide variety of archaeological data. Methods covered in this course will include radiocarbon dating,

paleoethnobotany, zooarchaeology, isotopic analysis, DNA, residue analysis, and chemical sourcing techniques. While this course will not prepare you to specialize in any one of these techniques, it will teach you how to assess whether or not a dataset is appropriate for addressing a given question. Conversely, it will train you to start designing your own research projects. The improvement of writing and argumentative skills will also feature prominently in this class.

By the end of this class you should be able to:

- 1) Converse knowledgably about Aegean archaeology.
- 2) Have a basic knowledge of a variety of scientific techniques and what they have to offer the archaeological community.
- 3) Assess and critique a scientific argument with confidence.
- 4) Identify questions or holes in a body of literature.
- 5) Understand how to use data to answer questions or support hypotheses.
- 6) Argue the value of your own research projects, both in written and oral formats.

### **Assignments**

Throughout this course, you will design your own research project. The graded assignments will all relate to this project in some way, culminating in a ten-minute presentation to the class in which you will convince us to fund your project. Each project should have one clear question and rely on one scientific method to address that

question. The hardest part will be formulating a hypothesis that links social questions to potential data, so give yourself plenty of time for research and brainstorming.

### Reflection Paper

This paper will be three pages of relatively free-form reflection. You will assess your current academic strengths and weakness, and reflect on what skills you would like to work on this semester. You are also tasked with looking ahead in the syllabus, discussing what topics you initially find the most compelling, and beginning to think about your term research project.

### Article Review

Peer review is a critical part of the academic process. In this assignment you will learn how to analyze different parts of a scholarly argument in order to critique a scientific article. This is also a chance to read outside the purview of Aegean prehistory. The article you review will utilize the method you have chosen, but apply it to an archaeological situation in a different part of the world.

### Research Proposal

The written proposal is part research paper and part creative problem solving. You must research the site(s) and time period you are interested in, as well as the method you will use to address your question. You will also design a sampling strategy and argue for

your project's overall efficacy. This is an opportunity to practice one of the most crucial skills in archaeology today: grant writing!

### Presentation

This last assignment is a chance to summarize and share all of your hard work with the class. You will give a ten-minute PowerPoint presentation, as if you were interviewing for a position or pitching your research proposal to a granting agency. The presentation should be clear, informative, and persuasive.

The final portion of your grade is attendance and participation. Because there are no written tests on class material, this grade is particularly meaningful. You must not only come to class, you must also have prepared the assigned reading and be ready to engage fully in class discussion. Mid-term feedback will be provided, and these expectations should not be taken lightly. More than two absences will result in a fractional letter grade deducted (i.e., A- to B+) for every class missed.

### **Grade Breakdown**

Attendance and Participation – **20%**

Reflection Paper – **5%**

Research Proposal – **40%**

Initial Paragraph (5%)

Rough Draft (25%)

Final Draft (70%)

Article Review – **25%**

Presentation – **10%**

A half letter grade will be deducted for each day a paper is late, starting the day the assignment is due but after the designated time.

### **Reading**

There will be assigned reading most days. At least once a week, usually Thursday, class time will be devoted to discussing case studies. While reading the case studies, think about the following questions:

What question do the authors address?

What is the cultural context of this study?

What methods are used?

How is data presented? Is it effective?

In Tuesday classes we will go over the cultural context of that week's question, and have a lecture explaining a type of scientific method. For these classes, you are tasked with reading about the cultural and archaeological period we are dealing with. These readings will mostly be from our textbook. While doing this type of reading, note what questions are being asked, what types of archaeological evidence are used, and what major sites are discussed.

Most readings will be posted online, but there is one required text for this course:

Shelmerdine, Cynthia W. (ed.)

2008. *The Cambridge Companion to the Aegean Bronze Age*. Cambridge University Press.

### Schedule

#### **Week 1: Introduction and history of the field**

Tuesday

*Introduction, Geography*

Thursday

*Discussion*

Tartaron 2008, “Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece,” read pp. 121-130 (“Archaeological science” section)

#### **Week 2: Chronology**

Tuesday

*Method Lecture: Radiocarbon Dating*

Textbook: Chapter 1 – Background, Sources, and Methods (Shelmerdine)

Thursday*Discussion*

Renfrew introduction to Thera III volume

Manning et al 2006, “Chronology for the Aegean Late Bronze Age 1700-1400 B.C.”

Friedrich et al 2006, “Santorini Eruption Radiocarbon Dated to 1627-1600 B.C.”

## REFLECTION PAPER DUE

**Week 3: How did domesticates reach Greece? Europe?**Tuesday*Method Lecture: Genetics*

Perlès 2001, The early Neolithic in Greece: the first farming communities in Europe,

pp. 39-63 (“The Introduction of Farming: Local Processes, Diffusion, or

Colonization?” and “Foreign Colonists: Where From?”)

Thursday*Discussion*

Perlès 2003, “The Mesolithic at Franchthi: An Overview of the Data and the Problems”

Fernández et al 2014, “Ancient DNA Analysis of 8000 B.C. Near Eastern Farmers

Supports an Early Neolithic Pioneer Maritime Colonization of Mainland Europe through Cyprus and the Aegean Islands”

#### **Week 4: How did Neolithic people live?**

Tuesday

*Method Lecture: Isotopes (diet)*

Perlès 2001, The early Neolithic in Greece: the first farming communities in Europe, pp. 173-200 (“The Early Neolithic Village”)

Thursday

*Discussion*

Papathanasiou 2003, “Stable isotope analysis in Neolithic Greece and possible implications on human health”

Vaiglova et al 2014, “An integrated stable isotope study of plants and animals from Kouphovouno, southern Greece: a new look at Neolithic farming”

#### **Week 5: Were there the beginnings of complexity in the FN/EBA?**

Tuesday

*Method Lecture: Zooarchaeology*

Textbook: Chapter 2 – The Early Bronze Age in Greece (Pullen)

Thursday

*Discussion*

Kayafa et al. 2000, “The Circulation of Copper in the Early Bronze Age in Mainland Greece: the Lead Isotope Evidence from Lerna, Lithares and Tsoungiza”

Pappa et al. 2004, “Evidence for large-scale feasting at Late Neolithic Makriyalos, N. Greece”

**Week 6: What caused the cultural disruption in the EBA?**

Tuesday

*Method Lecture: Environmental Reconstruction*

Textbook: Chapter 4 – Early Prepalatial Crete (Wilson)

PROPOSAL PARAGRAPH DUE (see Assignment #3)

Thursday

*Discussion*

Forsén 1992, The Twilight of the Early Helladics (pp 241-260)

Weiss 2000, “Beyond the Younger Dryas”

**Week 7: How/why did the Minoans flourish?**

(Schedule conferences this week, to discuss article review)

Tuesday

*Method Lecture: Petrography and INAA*

Textbook: Chapter 5A – Formation of the Palaces (Manning)

Thursday

*Discussion*

Day et al. 2011, “A World of Goods: Transport Jars and Commodity Exchange at the Late Bronze Age Harbor of Kommos, Crete”

Tomlinson et al. 2010, “Mycenaean and Cypriot Late Bronze Age Ceramic Imports to Kommos: An Investigation by Neutron Activation Analysis”

**Week 8: How did Minoans live?**

Tuesday

*Method Lecture: Organic Residue*

Textbook: Chapters 6 and 7 – The Material Culture of Neopalatial Crete (Younger and Rehak), and Minoan Culture: Religion, Burial Customs, and Administration (Younger and Rehak).

Thursday

*Discussion*

Evershed et al. 1997, “Fuel for thought? Beeswax in lamps and conical cups from Late Minoan Crete”

ARTICLE REVIEW DUE

**Week 9: How/why did early elites begin to accrue power on the Mainland?**

Tuesday

*Method Lecture: Micromorphology*

Textbook: Chapter 10 – Early Mycenaean Greece (Wright)

Thursday*Discussion*

Karkanas and Van de Moortel 2014, “Micromorphological analysis of sediments at the Bronze Age site of Mitrou, central Greece: patterns of floor construction and maintenance”

Hansen 1988, “Agriculture in the Prehistoric Aegean”

**Week 10: Who were the Mycenaean elites? How did they maintain status?**Tuesday*Method Lecture: Paleoethnobotany*

Textbook: Chapter 11 – Mycenaean Art and Architecture (Crowley)

Thursday*Discussion*

Bouwman et al. 2008, “Kinship between burials from Grace Circle B at Mycenae revealed by Ancient DNA typing”

Vika 2009, “Strangers in the grave? Investigating local provenance in a Greek Bronze Age mass burial using  $\delta^{34}\text{S}$  analysis”

**Week 11: How did palatial economy connect the palace to other polities, both within the Aegean and abroad?**

Tuesday

*Method Lecture: XRF and other chemical sourcing techniques*

Textbook: Chapter 12A – Economy and Administration (Shelmerdine)

ROUGH DRAFT DUE

Thursday

*Discussion*

Galaty 1999, “Wealth ceramics, staple ceramics: pots and the Mycenaean palaces”

Polikreti et al. 2011, “XRF analysis of glass beads from the Mycenaean palace of Nestor at Pylos, Peloponnesus, Greece: new insight into the LBA glass trade”

**Week 12: Diachronic and Landscape Perspectives, pt. 1**Tuesday

*Method Lecture: Isotopes (sourcing)*

Stos-Gale 2000, “Trade in metals in the Bronze Age Mediterranean: an overview of lead isotope data for provenance studies”

Thursday

*Method Lecture: GIS*

Textbook: Chapter 15 – Decline, Destruction, Aftermath (Deger-Jalkotzy)

**Week 13: Diachronic and Landscape Perspectives, pt. 2**

Tuesday

*In-class Activity: Survey*

No reading.

FINAL DRAFT DUE

Thursday

*Discussion*

Zangger 1994, "Landscape Changes around Tiryns during the Bronze Age"

Runnels 1995, "Environmental degradation in ancient Greece"

**Week 14: Did natural forces influence the LBA "collapse"?**

Tuesday

*Discussion*

Mouroukia et al. 1996, "Geomorphic-seismotectonic observations in relation to the  
catastrophes at Mycenae"

Drake 2012, "The influence of climatic change on the Late Bronze Age Collapse and  
the Greek Dark Ages"

Thursday

PRESENTATIONS

## **Week 15: The Future of Aegean Prehistory and Archaeological Science?**

Tuesday

PRESENTATIONS

Thursday

*Discussion*

Tartaron 2008, “Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece,” read pp. 130-135 (“Discussion: the place of Aegean prehistory in world archaeology,” “A practical example: Maya and Mycenaean states,” and “Conclusion” sections)

### **Full Citations for Assigned Reading**

Bouwman, Abigail S., Keri A. Brown, A. John N.W. Prag, and Terence A. Brown  
2008 Kinship Between Burials From Grave Circle B at Mycenae Revealed by Ancient DNA Typing. *Journal of Archaeological Science* 35: 2580-2584.

Day, Peter M., Patrick S. Quinn, Jeremy B. Rutter, and Vassilis Kilikoglou  
2011 A World of Goods: Transport Jars and Commodity Exchange at the Late Bronze Age Harbor of Kommos, Crete. *Hesperia* 80: 511-558.

Drake, Brandon  
2012 The Influence of Climatic Change on the Late Bronze Age Collapse and the Greek Dark Ages. *Journal of Archaeological Science* 39: 1862-1870.

Evershed, Richard P., Sarah J. Vaughn, Stephanie N. Dudd, and Jeffrey S. Soles  
1997 Fuel for Thought? Beeswax in Lamps and Conical Cups from Late Minoan Crete. *Antiquity* 71: 979-85.

Fernández, Eva, Alejandro Pérez-Pérez, Cristina Gamba, Eva Prats, Pedro Cuesta, Josep Anfruns, Miquel Molist, Eduardo Arroyo-Pardo, and Daniel Turbón

2014 Ancient DNA Analysis of 8000 B.C. Near Eastern Farmers Supports an Early Neolithic Pioneer Maritime Colonization of Mainland Europe through Cyprus and the Aegean Islands. *PLoS Genetics* 10(6): 1-16.

Forsén, Jeannette

1992 *The Twilight of the Early Helladics: A Study of the Disturbances in East-Central and Southern Greece Towards the End of the Early Bronze Age*. Antikens kultur och samhällsliv.

Friedrich, Walter L. Bernd Kroner, Michael Friedrich, Jan Heinemeier, Tom Pfeiffer, and Sahra Talamo

2006 Santorini Eruption Radiocarbon Dated to 1627-1600 B.C. *Science* 312(5773): 548.

Galaty, Michael L.

2007 Wealth Ceramics, Staple ceramics: Pots and the Mycenaean Palaces, in *Rethinking Mycenaean Palaces II: Revised and Expanded Second Edition*, edited by Michael L. Galaty and William A. Parkinson. The Cotsen Institute of Archaeology, UCLA.

Hansen, Julie M.

1988 Agriculture in the Prehistoric Aegean: Data Versus Speculation. *American Journal of Archaeology* 92(1): 39-52

Hardy, D. A., and A. Colin Renfrew (eds.)

1990 *Thera and the Aegean World III: Chronology. Proceedings of the Third International Congress*. The Thera Foundation, London.

Karkanias, Panagiotis and Aleydis Van de Moortel

2014 Micromorphological Analysis of Sediments at the Bronze Age site of Mitrou, Central Greece: Patterns of Floor Construction and Maintenance. *Journal of Archaeological Science* 43:198-213.

Kayafa, Maria, Sophie Stos-Gale, and Noel Gale

2000 The Circulation of Copper in the Early Bronze Age in Mainland Greece: the Lead Isotope Evidence from Lerna, Lithares and Tsoungiza, in *Metals Make the World Go Round: The Supply and Circulation of Metals in Bronze Age Europe. Proceedings of a conference held at the University of Birmingham in June 1997*, edited by C. F. E. Pare. Oxbow Books.

Manning, Sturt W., Christopher Bronk Ramsey, Walter Kutschera, Thomas Highman, Bernd Kromer, Peter Steier, and Eva M. Wild

2006 Chronology for the Aegean Late Bronze Age 1700-1400 B.C.. *Science* 312(5773): 565-569.

- Mouroukia, Hampik, Kaiti Gaki-Papanastassiou, and Dimitri Papanastassiou  
1996 Geomorphic-Seismotectonic Observations in Relation to the Catastrophes at Mycenae, in *Archaeoseismology*, edited by S. Stiros and R. E. Jones. Fitch Laboratory Occasional Paper 7.
- Papathanasiou, Anastasia  
2003 Stable Isotope Analysis in Neolithic Greece and Possible Implications on Human Health. *International Journal of Osteoarchaeology* 13: 314-324.
- Pappa, Maria, Paul Halstead, Kostas Kotsakis and Duska Urem-Kotsou  
2004 Evidence for Large-scale Feasting at Late Neolithic Makriyalos, N. Greece, in *Food, Cuisine and Society in Prehistoric Greece*, edited by Paul Halstead and John C. Barrett. Oxbow Books.
- Perlès, Catherine  
2001 *The Early Neolithic in Greece: the First Farming Communities in Europe*. Cambridge University Press.
- Perlès, Catherine  
2003 The Mesolithic at Franchthi: An Overview of the Data and the Problems. *British School at Athens Studies* 10: 79-87.
- Polikreti, Kyriaki, Joanne M. A. Murphy, Vasilike Kantarelou, and Andreas Germanos Karydas  
2011 XRF Analysis of Glass Beads from the Mycenaean Palace of Nestor at Pylos, Peloponnesus, Greece: New Insight into the LBA Glass Trade”
- Runnels, Curtis N.  
1995 Environmental Degradation in Ancient Greece. *Scientific American*, March 1995: 96-99.
- Stos-Gale, Sophie  
2000 Trade in Metals in the Bronze Age Mediterranean: An Overview of Lead Isotope Data for Provenance Studies, in *Metals Make the World Go Round: The Supply and Circulation of Metals in Bronze Age Europe. Proceedings of a conference held at the University of Birmingham in June 1997*, edited by C. F. E. Pare. Oxbow Books.
- Tartaron, Thomas F.  
2008 Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece. *Journal of Archaeological Research* 16: 83-161.

- Tomlinson, Jonathan E., Jeremy B. Rutter, and Sandra M .A. Hoffmann  
2010 Mycenaean and Cypriot Late Bronze Age Ceramic Imports to Kommos: An Investigation by Neutron Activation Analysis. *Hesperia* 79(2): 191-231.
- Vaiglova, Petra, Amy Bogaard, Matthew Collins, William Cavanagh, Christopher Mee, Josette Renard, Angela Lamb, Armelle Gardeisen, and Rebecca Fraser  
2014 An Integrated Stable Isotope Study of Plants and Animals From Kouphovouno, Southern Greece: A New Look at Neolithic Farming. *Journal of Archaeological Science* 42: 201-215.
- Vika, Efrossini  
2009 Strangers in the Grave? Investigating Local Provenance in a Greek Bronze Age Mass Burial Using  $\delta^{34}\text{S}$  Analysis. *Journal of Archaeological Science* 36: 2024-2028.
- Weiss, Harvey  
2000 Beyond the Younger Dryas: Collapse as Adaptation to Abrupt Climate Change in Ancient West Asia and the Eastern Mediterranean. In *Environmental Disaster and the Archaeology of Human Response*, edited by Garth Bawden and Richard M. Reycraft, pp. 75-97. Maxwell Museum of Anthropology, University of New Mexico.
- Zangger, Everhard  
1994 Landscape Changes around Tiryns during the Bronze Age. *American Journal of Archaeology* 98(2): 189-212.

### III. ANNOTATED SCHEDULE

#### **Week 1: Introduction and history of the field**

*Tuesday: Syllabus Review, Geographical/Chronological Lecture, and Class Assessment*

The beginning of this class period will be dedicated to going over the syllabus and the general organization of the course. The majority of the course period, however, will be a lecture on the geography of the Aegean and a brief introduction to the chronological periods we will be working with. The purpose of this lecture will be to make sure that everyone knows where and when in the world we are situated. What are the different regions of Greece and the Aegean at large? Are these cultural regions, geological regions, or both? What, briefly, are the culture-historical narratives that have been associated with these different regions in the Neolithic and Bronze Age?

One of the major goals of this class period will also be to assess student's current knowledge of prehistoric Aegean archaeology. Do the majority of students have an intimate knowledge of this archaeology? If so, is it from an art historical perspective, a classics perspective, or an anthropological perspective? Is there an understanding of how these cultures fit into the trajectory of Greek history? Is there a familiarity with the Homeric epics? Or, on the other hand, have the majority of students never heard of the Mycenaeans or the Minoans? Is there a familiarity with what is happening in the Near East or other areas of the Mediterranean during the Neolithic or in the Bronze Age? Are the majority of students majors, or non majors? In what fields? Some of these questions will be answered simply by understanding the overall curriculum and required coursework, but information gathered during this first class pertaining to the particular

backgrounds of my students will be important for framing how to approach this course in general, and Thursday's discussion in particular. I will gather this information in part by asking questions and gauging responses during the lecture, but also by asking students to complete an in-class survey and a take-home reflection paper due the following week (see Assignment #1).

*Thursday: Academic Context*

*Reading: Tartaron 2008, "Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece," pp. 121-130 ("Archaeological science" section)*

The reading assigned for this day goes over many of the methods we will cover in this course, and in particular looks at how they have been used in service of prehistory Aegean archaeology. This article is an excellent assessment and overview of the field, and the last few sections are also assigned for the last day of the term. This class will be mainly discussion based, although it will also be a chance to finish going over some of the topics from the previous Tuesday.

## **Week 2: Chronology**

*Tuesday: Method Lecture, Radiocarbon Dating*

*Reading: Textbook: Chapter 1 – Background, Sources, and Methods (Shelmerdine)*

### **REFLECTION PAPER DUE**

Most of this day will be focused on explaining radiocarbon dating. Go over how the basics of how radioactive isotopes decay, and how that helps us date organic

materials. Make sure to talk about the limitations of the technique, including the “old wood” effect. Also, go over how the radiocarbon calibration curve works, and the problems of plateaus. Discuss particularly the troubles this has caused for Bronze Age chronology. Mention, also, the issues of assigning absolute dates to cultural periods defined largely by ceramic typology.

*Thursday: Discussion*

*Reading: Renfrew introduction to Thera III volume*

*Manning et al 2006, “Chronology for the Aegean Late Bronze Age 1700-1400 B.C.”*

*Friedrich et al 2006, “Santorini Eruption Radiocarbon Dated to 1627-1600 B.C.”*

Start the class out by showing some slides of Akrotiri, and explaining the significance of the site. Bring in the other volumes of the Thera conferences, and ask students to discuss how the articles they read fits into the previous conversation.

### **Week 3: How did domesticates reach Greece? Europe?**

*Tuesday: Method Lecture, Genetics*

*Reading: Perlès 2001, The early Neolithic in Greece: the first farming communities in*

*Europe, pp. 39-63 (“The Introduction of Farming: Local Processes, Diffusion, or Colonization?” and “Foreign Colonists: Where From?”)*

This class should be devoted to introducing students to how genetics can be used to answer archaeological questions. Make sure to go over concepts such as mitochondrial

DNA, how to duplicate DNA for analysis, and haplotypes. If there is time, also go over the concept of bio-distance as determined by osteological markers.

*Thursday: Discussion*

*Reading: Perlès 2003, “The Mesolithic at Franchthi: An Overview of the Data and the Problems”; Fernández et al 2014, “Ancient DNA Analysis of 8000 B.C. Near Eastern Farmers Supports an Early Neolithic Pioneer Maritime Colonization of Mainland Europe through Cyprus and the Aegean Islands”*

Before discussing the articles, give an overview of the different arguments that European prehistorians have made about the mechanisms for the spread of the Neolithic. Ask students to recap what Perlès argues in the reading from Tuesday. Make sure to go over Franchthi, the role the site has played in the raging debates about the origins of agriculture, and how interpretations have changed. In discussing the Fernandez article, make sure everyone understands the data used, which are harder to understand than some of the other case studies (haplogroups and genetic difference). Finally, discuss the significance of the conclusions of both of these articles, in particular the evidence for maritime movement of peoples.

#### **Week 4: How did Neolithic people live?**

*Tuesday: Method Lecture, Isotopes (diet)*

*Perlès 2001, The early Neolithic in Greece: the first farming communities in Europe, pp. 173-200 (“The Early Neolithic Village”)*

Remind students what isotopes are, and explain the difference between radioactive and stable isotopes. Outline how carbon and nitrogen isotopes work, and why the ratio of different isotopes can tell us about diet. Make sure to stress that they only tell us part of the diet, and that they reflect the types of food that make up the majority of an individual's diet, rather than the entire complement of foods. In discussing nitrogen, use case studies from the Aegean (and the issue of fish in the diet) to illustrate these points. Also mention the use of isotopes (strontium, lead, sulfur) to source materials and organic remains.

*Thursday: Discussion*

*Reading: Papathanasiou 2003, "Stable isotope analysis in Neolithic Greece and possible implications on human health"; Vaiglova et al 2014, "An integrated stable isotope study of plants and animals from Kouphovouno, southern Greece: a new look at Neolithic farming"*

Begin by discussing why we might want to know about diet, and different ways that subsistence can structure societies. Talk about the academic history of perspectives on agriculture – why people would have adopted it, the different types of agriculture, and the negative health effects. In discussing the articles, make sure to spend time interpreting the charts and talking about what the different data mean. End by discussing how the conclusions of the articles fit into our understanding of Neolithic villages. Go over some of the material covered in the reading from the previous Tuesday, and try to bring in aspects of Neolithic life that do not relate directly to agriculture.

**Week 5: Were there the beginnings of complexity in the FN/EBA?**

*Tuesday: Method Lecture, Zooarchaeology*

*Reading: Textbook, Chapter 2 – The Early Bronze Age in Greece (Pullen)*

Introduce students to the some of the basic concerns of zooarchaeology, focusing on mammals but being sure to not exclude other types of animals such as birds, and especially fish. Outline some of the analyses zooarchaeologists use to assess taphonomic processes, and how an assemblage can be interpreted in a variety of ways. Go over the concept of a “death assemblage,” and how the ages of domestic animals at slaughter might tell us about how herds were managed in life. Try also to weave in some of the social theories regarding feasting, and the “secondary products revolution.”

*Thursday: Discussion*

*Kayafa et al. 2000, “The Circulation of Copper in the Early Bronze Age in Mainland Greece: the Lead Isotope Evidence from Lerna, Lithares and Tsoungiza”;* *Pappa et al. 2004, “Evidence for large-scale feasting at Late Neolithic Makriyalos, N. Greece”*

Begin by discussing the meaning of “complexity” and different ways we can assess complexity using the archaeological record. Ask students to recall some of the major sites discussed by Pullen, and talk a little bit about the significance of Lerna. In discussing the Kayafa article, ask students to explain their understanding of lead isotope analysis. This will have been the first time they have read an article that uses a method not explained the lecture before. Let them try to figure out how the method works given what the article says and by drawing on their knowledge of isotopes in general. Discuss

the zooarchaeological methods used by Pappa et al., and the significance of feasting. Do they think the circulation of copper and the possible feasting behavior denotes “complexity”? How else might we address this question?

### **Week 6: What caused the cultural disruption in the EBA?**

*Tuesday: Method Lecture, Environmental Reconstruction*

Reading: Textbook, Chapter 4 – Early Prepalatial Crete (Wilson)

PROPOSAL PARAGRAPH DUE (see Assignment #3)

This lecture should cover the different lines of evidence that are used for environmental reconstruction in the articles assigned for Thursday. Explain oxygen isotopes and how they are utilized to analyze marine cores, ice cores, and speleothems. Also touch on palynology and tree ring records. These are tricky concepts to cover in such a short time, so try to explain how these datasets can tell us about past environments but focus on what *types* of things they can tell us. Emphasize that the best way to understand ancient environments is the integration of multiple datasets that speak to a variety of scales.

*Thursday*

*Discussion: Forsén 1992, The Twilight of the Early Helladics (pp 241-260); Weiss 2000, “Beyond the Younger Dryas”*

Talk about the different types of evidence these authors use, and take the time to go over some of the concepts covered in the previous class. Ask students if they are

convinced by these arguments, and discuss some of the other explanations for this decline (covered in chapter 4 of the textbook). As a class, try to come to our own conclusions about the issue.

### **Week 7: How/why did the Minoans flourish?**

(Schedule conferences this week, to discuss the article review)

*Tuesday: Method Lecture, Petrography and INAA*

*Reading: Textbook, Chapter 5A – Formation of the Palaces (Manning)*

Briefly explain how INAA works, along with the process of visual microscopic petrography. Discuss what these different types of evidence can tell us about pottery and who made it. Also make sure to discuss what they *cannot* tell us. Talk about how these techniques are used in tandem with more traditional, stylistic analyses. Additionally, go over some key Minoan pottery styles.

*Thursday: Discussion*

*Reading: Day et al. 2011, “A World of Goods: Transport Jars and Commodity Exchange at the Late Bronze Age Harbor of Kommos, Crete”; Tomlinson et al. 2010, “Mycenaean and Cypriot Late Bronze Age Ceramic Imports to Kommos: An Investigation by Neutron Activation Analysis”*

Before discussing the articles, go over the political situation of Crete; talk about the different centers and potential interactions between them. Ask students why they think the Cretans did not suffer from the same Early Bronze Age collapse as those on the

mainland, and go on to talk about the dynamics of trade in other areas of the Mediterranean. The readings for today all focus on Kommos, but make sure to discuss how these articles inform our understanding of dynamics on Crete as a whole.

### **Week 8: How did Minoans live?**

*Tuesday: Method Lecture, Organic Residue*

*Reading: Textbook, Chapters 6 and 7 – The Material Culture of Neopalatial Crete (Younger and Rehak), and Minoan Culture: Religion, Burial Customs, and Administration (Younger and Rehak).*

Go over the basics of residue analysis. Talk about the difference between analyzing lipids and proteins, and the different types of materials that can be analyzed. Go over briefly how GC-MS works. Hold a discussion about what types of material can be identified this way, and different ways such analyses can be interpreted. Go over how residue analysis can help us identify very specific aspects of food preparation, including recipes and storage practices. Also talk about non-dietary topics, such as waxes and resins. As a case study, go over the resin from the Uluburun and the arguments pertaining to whether it was used as cargo in its own right or as a sealant and additive for wine (Stern et al. 2008).

*Thursday: Discussion*

*Evershed et al. 1997, “Fuel for thought? Beeswax in lamps and conical cups from Late Minoan Crete”*

## ARTICLE REVIEW DUE

The writing assigned for this day is relatively light; this is largely because the first major writing assignment is due on this day. Take advantage of the extra time to present a short lecture on some of the more classic works of Minoan art. The article assigned for today is a striking example of long-held assumptions challenged and proven wrong. Talk about Evans and the political context of his interpretations. Discuss potential forgeries, and how they relate to our understanding of Minoan religion. Hold a discussion about the ethical responsibilities archaeologists have, and the necessity of understanding our own biases.

## **Week 9: How/why did early elites begin to accrue power on the Mainland?**

*Tuesday: Method Lecture, Micromorphology*

*Reading: Textbook, Chapter 10 – Early Mycenaean Greece (Wright)*

This lecture should focus on the importance of understanding the depositional history of a site. Go over how micromorphological samples are taken, and how to choose where to take them. Talk about the different types of processes that micromorphology can identify, and how to determine whether a phenomenon is natural or anthropogenic.

*Thursday: Discussion*

*Reading: Karkanas and Van de Moortel 2014, “Micromorphological analysis of sediments at the Bronze Age site of Mitrou, central Greece: patterns of floor construction and maintenance”; Hansen 1988, “Agriculture in the Prehistoric Aegean”*

The Hansen article is different than many of the other case studies assigned in this class, in that it synthesizes data previously published and uses models to explain how agricultural practices could have contributed to the rise of palatial society. Go over the different types of botanical evidence she uses, but assure students that we will be going over these types of data more thoroughly the following Tuesday. With the Karkanas and Van de Moortel article discuss how different types of settlement (e.g. tell settlements vs. flat settlements) can reflect different organization strategies.

**Week 10: Who were the Mycenaean elites? How did they maintain status?**

*Tuesday: Method Lecture, Paleoethnobotany*

*Reading: Textbook, Chapter 11 – Mycenaean Art and Architecture (Crowley)*

In the lecture on paleoethnobotany, talk about the different ways plants can enter the archaeological record (seeds, charcoal, pollen, and phytoliths). Go over some of the major crops cultivated in the Aegean, and particularly the role of olive oil in palatial economy. In addition, go over a variety of wild species and what they can indicate about the surrounding environment.

*Thursday: Discussion*

*Reading: Bouwman et al. 2008, “Kinship between burials from Grace Circle B at*

*Mycenae revealed by Ancient DNA typing”; Vika 2009, “Strangers in the grave?*

*Investigating local provenance in a Greek Bronze Age mass burial using  $\delta^{34}S$  analysis”*

Ask students to recall the basics of mtDNA haplogroups, and explain briefly how isotopes such as sulfur and strontium can track individual movements across the landscape. In addition to discussing the individual articles, talk about the role familial relationships play in creating a permanent class of elites.

**Week 11: How did palatial economy connect the palace to other polities, both within the Aegean and abroad?**

*Tuesday: Method Lecture, XRF and other chemical sourcing techniques*

*Textbook: Chapter 12A – Economy and Administration (Shelmerdine)*

ROUGH DRAFT DUE

In addition to explaining chemical sourcing techniques, also do a short lecture on the archaeology of shipwrecks and how they have contributed to our understanding of circum-mediterranean trade. Outline some of the social theory that helps us conceptualize this trade (e.g. world systems theory). Finish this lecture with a discussion about how we define “the Aegean.” While this course largely falls into the trap of focusing on just the Peloponnese and Crete to understand the Mycenaean and Minoan cultures, it is important to examine how our understanding of past political boundaries can be wildly anachronistic, and heavily influenced by modern national borders.

*Thursday: Discussion*

*Reading: Galaty 1999, "Wealth ceramics, staple ceramics: pots and the Mycenaean palaces"; Polikreti et al. 2011, "XRF analysis of glass beads from the Mycenaean palace of Nestor at Pylos, Peloponnesus, Greece: new insight into the LBA glass trade"*

Take some time to talk about Pylos as a site. Discuss the meaning of whether various workshops were centralized, and controlled by the palace, or if they were workshops were relatively independent. How does chemical sourcing help us determine the nature of workshops? The nature of trade? How can we integrate chemical sourcing with other lines of evidence (iconographic, textual, etc.)

## **Week 12: Diachronic and Landscape Perspectives, pt. 1**

*Tuesday: Method Lecture, Isotopes (sourcing)*

*Reading: Stos-Gale 2000, "Trade in metals in the Bronze Age Mediterranean: an overview of lead isotope data for provenance studies"*

During the lecture cover both lead and strontium isotopes, and how they can be used to talk about the movement of both objects and people across the landscape. In the second part of the lecture, go over different metalworking techniques, and how to identify metalworking workshops (soil chemistry, slag, etc). End with a discussion about the role of metal throughout the Bronze Age.

*Thursday: Method Lecture: GIS*

*Reading: Textbook, Chapter 15 – Decline, Destruction, Aftermath (Deger-Jalkotzy)*

Go over some of the more common forms of spatial statistics, and the different ways GIS has changed the face of archaeology. Additionally, talk about the way settlement patterns can indicate social development. For case studies, look at the Thessalian magoules in the Neolithic, and Messenia in the Late Bronze Age.

### **Week 13: Diachronic and Landscape Perspectives, pt. 2**

*Tuesday: In-class Activity, Survey*

*No reading.*

#### **FINAL DRAFT DUE**

Begin this class by outlining the significant contributions survey archaeology has made to the field of Aegean prehistory. Present a few of the major surveys (Minnesota Messenia Expedition, the Argolid Survey, the Pylos Regional Archaeological Project, etc.). For the class activity, bring in survey volumes and maps. Break the class into groups and assign a different region to each group. Put together a series of questions for each region (and possibly a short GIS lab?) that require the students to work directly with the maps and survey catalogues.

*Thursday: Discussion*

*Reading: Zangger 1994, "Landscape Changes around Tiryns during the Bronze Age";*

*Runnels 1995, "Environmental degradation in ancient Greece"*

In addition to discussing the articles, go over the types of evidence geologists use to understand long-term changes in the landscape (specifically, how they identify marine

sediments and changing shorelines). Start a discussion about different ways humans modify their landscape, both intentionally and by accident. Discuss how diachronic studies of landscape changes can not only tell us about the past, but also inform modern land use practices.

#### **Week 14: Did natural forces influence the LBA “collapse”?**

*Tuesday: Discussion*

*Reading: Mouroukia et al. 1996, “Geomorphic-seismotectonic observations in relation to the catastrophes at Mycenae”; Drake 2012, “The influence of climatic change on the Late Bronze Age Collapse and the Greek Dark Ages”*

Outline the different theories that have been used to explain the collapse of palatial economy at the end of the Bronze Age. Talk about the concept of social collapse in general, and how historical context has influenced scholars’ perception of the collapse and the so-called “Dark Ages”.

*Thursday*

PRESENTATIONS

#### **Week 15: The Future of Aegean Prehistory and Archaeological Science?**

*Tuesday*

PRESENTATIONS

*Thursday: Discussion*

*Reading: Tartaron 2008, "Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece," read pp. 130-135 ("Discussion: the place of Aegean prehistory in world archaeology," "A practical example: Maya and Mycenaean states," and "Conclusion" sections)*

Discuss the comparison of the Maya and Mycenaean states. Are there any other areas in which you think fruitful comparisons can be made? How does archaeological science fit into these comparisons? Ask the students for their final thoughts on the merits of archaeological science in the context of Aegean archaeology. Do they think studying Aegean archaeology has anything to offer other fields? If so, what? If not, how could that change? Lastly, return copies of the reflection papers the students wrote in the beginning of the semester. Hopefully they will have new perceptions about the field, and know much more about topics that initially interested them.

## IV. ANNOTATED ASSIGNMENTS

**Class Assessment Survey**

Name:

Year:

Major:

Minor:

Please list any classes you have taken in Archaeology, Art History, Anthropology, Classics, or any other classes you think might potentially relate to this course:

What led you to sign up for this course?

Please score both your comfort and interest in the following topics.

**Comfort**

1 = this topic terrifies me

2 = perhaps it's been a while, but I vaguely know what this is

3 = I don't have a lot of experience, but am comfortable with the basics

4 = I feel fairly confident in my abilities/knowledge, but I am by no means an expert

5 = I have a lot of experience with this topic

**Interest**

1 = I would really rather sleep

2 = I am not sure how this would be useful, but I'd be open to learning

3 = this would be very useful, but not necessarily scintillating

4 = I have a reasonable amount of curiosity about this topic

5 = I want to learn everything about this topic.

Comfort	Interest	Topic
		Mycenaean Art/Architecture
		Minoan Art/Architecture
		Early Bronze Age in Greece
		Middle Bronze Age in Greece
		Early Neolithic Greece
		Middle Neolithic Greece
		Late and Final Neolithic Greece
		Statistics
		Geographic Information System (GIS)
		Paleoethnobotany (ancient plants: seeds, pollen, etc.)
		Zooarchaeology (ancient animal bones)
		Human Osteology
		Basic Chemistry (how atoms work)
		Residue Analysis (lipids and proteins)
		Isotopes (carbon, oxygen, nitrogen, strontium)
		Radiocarbon Dating

### **Assignment 1: Reflection**

*This assignment is a sort of warm-up; the main purpose is to help students get in the habit of putting their thoughts into writing. The other goal of this assignment is to encourage students to look ahead on their own and start thinking about the final project. One of the weaknesses of this course is that it asks students to decide on a topic early in the semester, before we have covered most time periods or methods in class. This assignment should help alleviate some of that stress, and start them on the path of independent research.*

An important aspect of this class will be honing your ability to clearly communicate through writing. The type of writing in this class (an article review, a research proposal) may be different from what you've experienced in other classes. You may be asked to organize your thoughts in ways you are not yet comfortable with, but you will still draw on previously developed skills, such as argumentation, clarity, and the art of revision.

For this assignment, respond to the two following prompts. The writing style can be relatively stream-of-consciousness and you should use this opportunity to let your mind wander across a couple of different topics. That being said, you should go back to make minor edits and make sure that full sentences are used. Ideally, this assignment will help you identify a direction for the research proposal.

*Part 1 (1-1.5 pages)*

In one page, describe your most successful writing project from the past, not necessarily in terms of grade, but in terms of your satisfaction with the product. What made this experience successful? Are there ways you can work those strategies into your next paper? Finally, what do you want to improve in your writing (e.g. clarity, strength of argument, editing, outlining)?

*Part 2 (2-2.5 pages)*

Look ahead in the syllabus to the different questions, methods, and case studies. What topics catch your eye? Flip through one of the chapters in the textbook, and read two case study abstracts or introductory paragraphs. What did you choose to read? What topic(s) are the most interesting to you, and what are you most intent on learning this semester? Think about what you already know about this topic and what you would like to find out. If you were to focus your research proposal on this, what would be the next step?

## **Assignment 2: Article Review**

*This assignment is designed to guide students through reviewing a scientific article. The process will have been introduced in a class setting, and this assignment will provide the opportunity to practice the skills individually and on a deeper level. By writing the review, it is my hope that the students will intimately wrestle with a specific dataset and gain an understanding of how to link data with questions. Secondly, by asking students to critique rather than simply summarize the article, it should help build confidence and reinforce that knowledge is not discovered and disseminated by people with special authority, but rather is created as part of an ongoing and collaborative process.*

### *Writing a Review*

Peer review is a crucial aspect of academia; this assignment is designed to give you practice engaging with an article the way a reviewer might. The specific organization of the review is up to you, but it must address each of the following questions:

- What is the main question?
- What data are used?
- Are the data presented well?
- Do the data fit the question?
- How does the author(s) interpret the data? Do you agree with the interpretation?
- Is the article clear and well written?
- Ultimately, are you convinced? Do you have suggestions for improving the article?

Make sure you understand any figures that are included, and think about if you would like additional figures. Depending on the article, you may want to focus on one or two of the questions more than the others. Feel free to structure your paper around what you find the most fruitful, but do make sure to touch on all of the above criteria. I also suggest you take this opportunity to seriously think about what the author(s) did well, or what you might have done differently in their place, in terms of the actual study as well as the writing of the article. The paper you review will be used in your background section of Assignment 3, and this review may help you formulate your research design and hone your proposal (see below).

### *Choosing an Article*

For this assignment, you will review a journal article that uses the same method you have chosen for Assignment 3, but that deals with a time, place, and culture outside the realm of Aegean Prehistory. Try to make sure that the article you choose is widely cited in the literature. All of the scientific methods we cover in this course were developed in other fields of study, primarily the natural sciences (biology, geology, chemistry, etc.).

Additionally, the archaeological applications of these methods were largely pioneered in areas other than the Aegean. The first successful application of a method is an important step in convincing the larger scholarly community that the technique is a valid avenue for collecting archaeological data. In proposing your research project, you must demonstrate that the method you chose can successfully collect the data that you want, and also that those data will successfully address your hypothesis. In short, you must argue that your

method will work. One way to do this is by citing other scholars who have used a similar method, perhaps even asked similar questions. Understanding the literature surrounding a given technique can also inform your own questions, even though the cultural context may be very different. For example, you might not actually agree with how this technique has been used in the past, or you may be able to utilize it in service of new and exciting questions.

### *Conferences*

We will schedule individual conferences two weeks before the review is due to discuss the article you have chosen. Please come to your conference with at least one article in mind; if you are having trouble choosing between a few articles, please bring them all so I can also help you choose. The purpose of this conference will be to make sure you have chosen an appropriate article, and also to discuss your opinions that will make up the majority of the review.

### *Other Specifications*

The paper should be 4-6 pages, double-spaced, 12-point font, Times New Roman.

You need not draw on any sources beyond the article you are reviewing, but please do provide a proper citation for the article in SAA style.

This assignment is due [DATE], in class.

### **Assignment 3: Research Proposal**

*The purpose of this assignment is to give students a taste of designing their own research project, but with the support and structure of an introductory class. By building off of Assignment 2, it will train students to think of themselves as active participants in a scholarly tradition, rather than just a consumer of facts. This assignment should also model a question-based approach to archaeological research, based on the scientific method rather than a purely interpretive model. On the one hand, this is to reinforce particular skills involved in archaeological science, but also to model the kind of thinking required for planning (and funding!) **any** archaeological field project in the modern age. While I hope the students will find their site, method, and social questions both interesting and thought-provoking, the ultimate goals of this assignment are to build key writing skills, develop a basic understanding of research design, and to instill the confidence that they can contribute to the production of knowledge, whatever field they decide to pursue.*

#### *Description*

For this assignment, you will propose and design an archaeological research project. There are three main decisions you must make in the course of this project 1) what site (or sites) you will look at, and at what time period 2) what social question you will ask, and 3) what method you will use to answer that question.

This project has three graded components, due at different times. First, you will turn in a brief paragraph outlining your topic, question, and method. This paragraph will

be due [DATE], and will be graded on a pass-fail basis. The second piece will be a rough draft, due [DATE]. While this draft does not need to be thoroughly polished, it should be more-or-less complete; it must include all the sections listed below and a full bibliography. The final, and most significant, portion is the final draft, due [DATE].

### *Structure*

Here I propose an outline for your paper. This format is designed to help you convince the reader that your project is both feasible and worthwhile. It is, however, certainly not the only way of doing so. ***If you choose to organize your proposal differently, you must first get the alternate structure approved by me.***

### Introduction

In this section you should outline what social question you intend to address, and why your reader should care about the question. Make sure to *briefly* introduce the site and time period you are concerned with.

### Background and Context

This is where you will explain the existing scholarship pertaining to your topic. Think of this section as a way of providing with your reader with the information necessary for understanding the significance of your question. How has this site or particular social dynamic been interpreted in the past? What do we know, and what don't we know? You

should demonstrate that answering your question would explain a facet of people's lives currently not understood in the literature.

### Explaining your Method

Your task here is twofold: to briefly explain how the method you have chosen works, and to convince your reader that your technique is capable of addressing your question.

### Research Design

This is where you outline your specific research design. You should detail how many samples you need, and how or where you will take the samples. You also need to discuss how you will go about interpreting the data once it is collected. Remember, *you do not know what your results will be*. The results should meaningfully relate to your hypothesis regardless of what they are. Put forward a few potential outcomes and explain how you will interpret those patterns of data.

### Conclusion

Now that your reader understands your plan, restate your question and reinforce how the data you propose to collect will address that question. Most importantly, bring the discussion back to the broader implications—how will this further the discussion, and why should we care?

### *Other Specifications*

The paper should be 8-10 pages, double-spaced, 12-point font, Times New Roman.

Please properly cite all sources in SAA style.

This assignment is due [DATE], in class.

Topic Paragraph – 5% of grade, due [DATE]

Rough Draft – 25% of grade, due [DATE]

Final Draft – 70% of grade, due [DATE]

#### **Assignment 4: Presentation**

*The purpose of this assignment is to give students practice presenting their work orally as well as in writing. The act of condensing their proposal into a ten-minute presentation should help them further refine their argument and conceptualize the work they have done over the semester in a new way. Ideally they will be proud of their accomplishments, and this will solidify that sense of pride and ownership. Additionally, they will have each engaged with topics at a depth not covered elsewhere in the class and this is a chance for them to share knowledge and learn from their peers.*

This is the final assignment you will do for this class, and should nicely synthesize what you have been working on all semester. It is also a chance for you to share all of your hard work with the class! You will give a ten-minute PowerPoint presentation, as if you were interviewing for a position or pitching your research proposal to a granting agency. The presentation should be clear, informative, and persuasive.

#### *Content*

The purpose of the presentation is to convince us to fund your project. In order to do this, you must also teach us about your site and about your method. *Briefly* talk about the site and materials you will be using, and the principles of the method you have chosen. Lead us through your thought process, and why you have chosen these particular materials or techniques in addressing your question. Secondly, you should outline for us what your project will entail, and how you will collect and interpret your data. Most importantly,

the main takeaway of the presentation should be why your project is meaningful. Why should we care?

### *Presentation*

Your PowerPoint slides should be eye-catching, simple, and meaningful. They should rely largely on images and not incorporate too much text. Images could include pictures of your site, materials that you will be analyzing, tools used in your scientific technique, and maps. You must also include one graphic that maps out your research design, explaining how your data will connect to your question.

Additionally, your presentation should be well rehearsed and polished. You may have note cards if you wish, but be careful that you are familiar enough with the content and flow of the presentation that you do not just read them to us. Have a conversation with your audience, and convince us that your project has merit.

Presentations will be given in class on [DATE] and [DATE].

## V. BIBLIOGRAPHY

- Bouwman, Abigail S., Keri A. Brown, A. John N.W. Prag, and Terence A. Brown  
2008 Kinship Between Burials From Grave Circle B at Mycenae Revealed by Ancient DNA Typing. *Journal of Archaeological Science* 35: 2580-2584.
- Cherry, John F., Despina Margomenou, and Lauren E. Talalay, eds.  
2005 *Prehistorians Round the Pond: Reflections on Aegean Prehistory as a Discipline*. Kelsey Museum Publication 2. Ann Arbor, Michigan.
- Day, Peter M., Patrick S. Quinn, Jeremy B. Rutter, and Vassilis Kilikoglou  
2011 A World of Goods: Transport Jars and Commodity Exchange at the Late Bronze Age Harbor of Kommos, Crete. *Hesperia* 80: 511-558.
- Drake, Brandon  
2012 The Influence of Climatic Change on the Late Bronze Age Collapse and the Greek Dark Ages. *Journal of Archaeological Science* 39: 1862-1870.
- Evershed, Richard P., Sarah J. Vaughn, Stephanie N. Dudd, and Jeffrey S. Soles  
1997 Fuel for Thought? Beeswax in Lamps and Conical Cups from Late Minoan Crete. *Antiquity* 71: 979-85.
- Fernández, Eva, Alejandro Pérez-Pérez, Cristina Gamba, Eva Prats, Pedro Cuesta, Josep Anfruns, Miquel Molist, Eduardo Arroyo-Pardo, and Daniel Turbón  
2014 Ancient DNA Analysis of 8000 B.C. Near Eastern Farmers Supports an Early Neolithic Pioneer Maritime Colonization of Mainland Europe through Cyprus and the Aegean Islands. *PLoS Genetics* 10(6): 1-16.
- Forsén, Jeannette  
1992 *The Twilight of the Early Helladics: A Study of the Disturbances in East-Central and Southern Greece Towards the End of the Early Bronze Age*. Antikens kultur och samhällsliv.
- Friedrich, Walter L. Bernd Kroner, Michael Friedrich, Jan Heinemeier, Tom Pfeiffer, and Sahra Talamo  
2006 Santorini Eruption Radiocarbon Dated to 1627-1600 B.C. *Science* 312(5773): 548.
- Galaty, Michael L.  
2007 Wealth Ceramics, Staple ceramics: Pots and the Mycenaean Palaces, in *Rethinking Mycenaean Palaces II: Revised and Expanded Second Edition*, edited by Michael L. Galaty and William A. Parkinson. The Cotsen Institute of Archaeology, UCLA.

- Hansen, Julie M.  
1988 Agriculture in the Prehistoric Aegean: Data Versus Speculation. *American Journal of Archaeology* 92(1): 39-52
- Hardy, D. A., and A. Colin Renfrew (eds.)  
1990 *Thera and the Aegean World III: Chronology. Proceedings of the Third International Congress*. The Thera Foundation, London.
- Kamp, Kathryn  
2014 Teaching Archaeology in the First Part of the Twenty-First Century. *The SAA Archaeological Record* 14(1): 30-33.
- Karkanias, Panagiotis and Aleydis Van de Moortel  
2014 Micromorphological Analysis of Sediments at the Bronze Age site of Mitrou, Central Greece: Patterns of Floor Construction and Maintenance. *Journal of Archaeological Science* 43:198-213.
- Kayafa, Maria, Sophie Stos-Gale, and Noel Gale  
2000 The Circulation of Copper in the Early Bronze Age in Mainland Greece: the Lead Isotope Evidence from Lerna, Lithares and Tsoungiza, in *Metals Make the World Go Round: The Supply and Circulation of Metals in Bronze Age Europe. Proceedings of a conference held at the University of Birmingham in June 1997*, edited by C. F. E. Pare. Oxbow Books.
- Manning, Sturt W., Christopher Bronk Ramsey, Walter Kutschera, Thomas Highman, Bernd Kromer, Peter Steier, and Eva M. Wild  
2006 Chronology for the Aegean Late Bronze Age 1700-1400 B.C.. *Science* 312(5773): 565-569.
- Mouroukia, Hampik, Kaiti Gaki-Papanastassiou, and Dimitri Papanastassiou  
1996 Geomorphic-Seismotectonic Observations in Relation to the Catastrophes at Mycenae, in *Archaeoseismology*, edited by S. Stiros and R. E. Jones. Fitch Laboratory Occasional Paper 7.
- Papathanasiou, Anastasia  
2003 Stable Isotope Analysis in Neolithic Greece and Possible Implications on Human Health. *International Journal of Osteoarchaeology* 13: 314-324.
- Pappa, Maria, Paul Halstead, Kostas Kotsakis and Duska Urem-Kotsou  
2004 Evidence for Large-scale Feasting at Late Neolithic Makriyalos, N. Greece, in *Food, Cuisine and Society in Prehistoric Greece*, edited by Paul Halstead and John C. Barrett. Oxbow Books.
- Perlès, Catherine

2001 *The Early Neolithic in Greece: the First Farming Communities in Europe*. Cambridge University Press.

Perlès, Catherine

2003 The Mesolithic at Franchthi: An Overview of the Data and the Problems. *British School at Athens Studies* 10: 79-87.

Polikreti, Kyriaki, Joanne M. A. Murphy, Vasilike Kantarelou, and Andreas Germanos Karydas

2011 XRF Analysis of Glass Beads from the Mycenaean Palace of Nestor at Pylos, Peloponnesus, Greece: New Insight into the LBA Glass Trade”

Runnels, Curtis N.

1995 Environmental Degradation in Ancient Greece. *Scientific American*, March 1995: 96-99.

Sept, Jeanne

2004 The Stone Age in the Information Age: Helping Undergraduates Think Like Archaeologists, in *The Scholarship of Teaching and Learning in Higher Education: Contributions of Research Universities*, edited by William E. Becker and Moya L. Andrews. Indiana University Press.

Stos-Gale, Sophie

2000 Trade in Metals in the Bronze Age Mediterranean: An Overview of Lead Isotope Data for Provenance Studies, in *Metals Make the World Go Round: The Supply and Circulation of Metals in Bronze Age Europe. Proceedings of a conference held at the University of Birmingham in June 1997*, edited by C. F. E. Pare. Oxbow Books.

Tartaron, Thomas F.

2008 Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece. *Journal of Archaeological Research* 16: 83-161.

Tomlinson, Jonathan E., Jeremy B. Rutter, and Sandra M .A. Hoffmann

2010 Mycenaean and Cypriot Late Bronze Age Ceramic Imports to Kommos: An Investigation by Neutron Activation Analysis. *Hesperia* 79(2): 191-231.

Vaiglova, Petra, Amy Bogaard, Matthew Collins, William Cavanagh, Christopher Mee, Josette Renard, Angela Lamb, Armelle Gardeisen, and Rebecca Fraser

2014 An Integrated Stable Isotope Study of Plants and Animals From Kouphovouno, Southern Greece: A New Look at Neolithic Farming. *Journal of Archaeological Science* 42: 201-215.

Vika, Efrossini

2009 Strangers in the Grave? Investigating Local Provenance in a Greek Bronze Age Mass Burial Using  $\delta^{34}\text{S}$  Analysis. *Journal of Archaeological Science* 36: 2024-2028.

Weiss, Harvey

2000 Beyond the Younger Dryas: Collapse as Adaptation to Abrupt Climate Change in Ancient West Asia and the Eastern Mediterranean. In *Environmental Disaster and the Archaeology of Human Response*, edited by Garth Bawden and Richard M. Reycraft, pp. 75-97. Maxwell Museum of Anthropology, University of New Mexico.

Zangger, Everhard

1994 Landscape Changes around Tiryns during the Bronze Age. *American Journal of Archaeology* 98(2): 189-212.