CAS/GRS Course Revision Proposal Form

This form is to be used when proposing a revision of an existing CAS or GRS course.

Once completed, this form should be submitted to Senior Academic Administrator Peter Law (617-353-7243) as a PDF file to pgl@bu.edu.

For further information or assistance, contact Associate Dean Joseph Bizup (617-353-2409; jbizup@bu.edu) about CAS courses or Associate Dean Jeffrey Hughes (617-353-2690; hughes@bu.edu) about GRS courses.

DEPARTMENT OR PROGRAM: Archaeology
CURRENT COURSE NUMBER: 381/802
CURRENT COURSE NAME: Introduction to Paleoethnobotany: Plants and Ancient Man
CURRENT 40 WORD COURSE DESCRIPTION: Introduces the method and theory of the study through archaeological evidence of the uses of plants by humans. Highlights the relationship between humans and their environment and between the environment and the archaeological record. Laboratory sessions concentrate on identification.

CURRENT CROSS-LISTING DEPARTMENT/PROGRAM, if any:
TO BE OFFERED NEXT: Sem./Year: _Fall___ / __2017__
INSTRUCTOR(S): John Marston
DEPARTMENT CONTACT NAME AND POSITION: John Marston, Assistant Professor
DEPARTMENT CONTACT EMAIL AND PHONE: marston@bu.edu; 3-2357

ITEMS PROPOSED FOR REVISION (check all that apply):

- [x] Course Number
- [x] Title
- [x] Short Title
- [] Credits
- [] Cross-listing
- [x] 40 Word Description
- [x] Prerequisites
- [] Divisional Studies Credit
- [] Other (Explain)

Notes: The “short title” appears in the course inventory and on student transcripts and must be 15 characters maximum including spaces. The “40 word description” appears in the CAS/GRS Bulletin.

PROPOSED REVISIONS: For each item checked above, provide the current information, then the proposed information, then a brief explanation for the proposed change, including the intended impact of the change.
1. Course Number

a. Current information: CAS 381 / GRS 802

b. Proposed information: CAS 516

c. Explanation & impact: This course was recently redesigned to provide a more methodologically focused experience, increasing the rigor of the course. Undergraduate students enrolled in Fall 2015 felt that the course was more demanding than other 300-level courses. All similar archaeological methods courses, save zooarchaeology (382), are taught at the 500-level (e.g., remote sensing [505], GIS [506], subsurface mapping [507], geoarchaeology [509], and ceramics [590]). We aim to consolidate all of our archaeological science methods courses at the 500-level to provide a uniformly rigorous experience for all advanced undergraduate and beginning graduate students. We anticipate that this change will reduce the administrative burden associated with managing separate undergraduate and graduate enrollments in the current split format and will not impact enrollments, which have been robust in both paleoethnobotany (10, out of max 12) and zooarchaeology (21, out of max 25) in the most recent semester offered.

2. Title

a. Current information: Introduction to Paleoethnobotany: Plants and Ancient Man

b. Proposed information: Paleoethnobotany

c. Explanation & impact: Removes superfluous words and gendered language from title

3. Short Title

a. Current information: Palaeoethnobot

b. Proposed information: Paleoethnobotan

c. Explanation & impact: Harmonizes spelling and closer approximates full title

4. 40-Word Description

a. Current information: Introduces the method and theory of the study through archaeological evidence of the uses of plants by humans. Highlights the relationship between humans and their environment and between the environment and the archaeological record. Laboratory sessions concentrate on identification.

b. Proposed information: Introduces the theory and method of the study of archaeological plant remains and basic botanical and ecological concepts. Highlights relationships between people and environments and the roles of plants in past societies. Laboratory sessions concentrate on quantitative analysis.

c. Explanation & impact: Better reflects actual content of course as currently taught. Emphasizes diversity of conceptual frameworks employed in the class, and the focus on quantitative analysis in the laboratory portion of the class.
5. Prerequisite

a. Current information: none

b. Proposed information: AR101 or consent of instructor

c. Explanation & impact: This is an advanced course in archaeological methods and requires a basic knowledge of archaeological practice such as that provided in AR 101 (Introduction to Archaeology) or another equivalent course

IMPACT ON OTHER DEPARTMENTS/PROGRAMS: Will any of these changes have an impact on students pursuing the degree requirements or expectations of other departments, programs, or schools?
Check one: ☐ Yes  x No

If YES, please identify impacts and attach cognate comment from the appropriate department/ program/ school.

RESOURCE NEEDS: STAFFING, FACILITIES, AND EQUIPMENT: As a result of the proposed changes, will there be any changes in the staffing, special facilities or equipment needs of the course (e.g. laboratory, library, instructional technology, technical resources, etc)?
Check one: ☐ Yes  x No

If YES, explain further and indicate whether currently available staffing, facilities, and equipment are adequate for the proposed course. (NOTE: Approval of proposed revisions does not imply a change in resource commitments on the part of CAS.)

FURTHER INFORMATION THAT MUST BE SUBMITTED IN ORDER FOR THIS PROPOSAL TO BE CONSIDERED:

1. A complete week-by-week SYLLABUS with student learning objectives, readings, and assignments that reflects the proposed changes (see guidelines on “Writing a Syllabus” on the Center for Teaching & Learning website. Be sure that syllabus includes your expectations for academic honesty, with URL for pertinent undergraduate or GRS academic conduct code(s).

2. Cognate comment from chairs or directors of relevant departments and/or programs. Use the form available here. You can consult with Joseph Bizup (CAS) or Jeffrey Hughes (GRS) to determine which departments or programs inside and outside of CAS would be appropriate.

DEPARTMENT APPROVAL:  

[Signature]  
Department Chair  

Date

Other Department Chair(s) (for cross-listed courses)  

Date

3
DEAN'S OFFICE CURRICULUM ADMINISTRATOR USE ONLY

CAS/GRS CURRICULUM COMMITTEE APPROVAL:

☐ Approved  Date:__________
☐ Tabled  Date:__________
☐ Not Approved  Date:__________

Divisional Studies Credit
☐ Endorsed
☐ HU
☐ MGS
☐ NS
☐ SS
☐ Not endorsed

Curriculum Committee Chair Signature and Date
Comments:

PROVISIONAL APPROVAL REQUESTED for Semester/Year

Dean of Arts & Sciences Signature and Date
Comments:

CAS FACULTY: Faculty Meeting Date:__________  ☐ Approved  ☐ Not Approved

Curriculum Administrator Signature and Date
Comments:
ARCHAEOLOGY 516: PALEOETHNOBOTANY
Course Syllabus
Boston University
Fall Semester, 2017

COURSE INFORMATION
Professor: John M. Marston  Email: marston@bu.edu
Office Phone: (617) 353-2357  Office: STO (675 Commonwealth Ave.), 345F
Office Hours: TBD

Class Meetings: CAS 243, Th 3:35-6:15 pm
Course Website at http://learn.bu.edu

Teaching Fellow: Kathleen Forste  Email: kmforste@bu.edu
Lab Office Hours: STO 348, TBD

COURSE DESCRIPTION
Paleoethnobotany is the study of archaeological plant remains, from large pieces of wood to
seeds and microscopic starch grains and silica bodies (phytoliths). In this course we engage deeply
with the theory and methods of this field, addressing questions including:

- How and when are plant remains preserved archaeologically? How do we sample and
  recover those remains?
- How can we reconstruct botanical landscapes of the past, including the effects of human
  activity on ancient environments?
- What plant foods did people eat in the past and how were they prepared?
- Why did past societies choose specific agricultural and land-use strategies?
- How do we quantify botanical results and compare them within and between sites?

This course will introduce you to basic archaeological, laboratory, and statistical methods commonly
employed to address these questions and will teach you to be able to interpret primary
paleoethnobotanical data and academic articles. In order to learn these methods, we combine
readings, short lectures, and discussions with hands-on sessions in the laboratory. You will analyze
your own real archaeological flotation sample and integrate your results with those of the class to
produce a research report on aspects of plant use at a Near Eastern site.

This course is designed to teach you the methods and theory employed in scientific study of
archaeological plant materials. It assumes a basic familiarity with archaeology, such as that gained
through an introductory course in the field; for this reason Archaeology 101 is a prerequisite.
Familiarity with scientific methods in archaeology or botany are also useful, and Archaeology 307,
308, and 707 are recommended, but not required.

COURSE GOALS
In this course, you will:

- Explore methods used to recover and interpret archaeological plant assemblages
- Analyze carbonized plant remains from an archaeological site
- Quantify, integrate, and interpret paleoethnobotanical datasets of various types
- Engage multiple theoretical perspectives for the interpretation of archaeological plant
  assemblages
Course Objectives

After successfully completing this course, you will be able to:

- Design effective botanical sampling and basic analysis strategies for archaeological projects
- Conduct laboratory analysis and basic quantification of flotation samples
- Critique the methods and interpretations of published paleoethnobotanical reports
- Interpret and present paleoethnobotanical data in a formal report

Assignments and Grading

The most critical factor in succeeding in this course is staying current with reading assignments, laboratory activities, and class attendance. The material we address will be complex and technical at times, and many of the readings will be unfamiliar and may be difficult; class sessions are designed to help you work through that material with your classmates and instructors. Laboratory activities, both in and outside of class, are also a critical element for achieving a thorough understanding of the methods presented in this course. Active participation requires preparation for class by completing all assigned readings by the date indicated in this syllabus. For this reason attendance and active participation forms a substantial percentage of your final grade.

We will have three quizzes, which combine in-class and take-home elements, each approximately 45 minutes in length. These quizzes, spaced throughout the term, are each focused on a different component of paleoethnobotanical interpretation. Each quiz will ask you to do two things: 1) recall technical details that demonstrate your understanding of how the methods introduced in class work and when they can and should be employed, and 2) synthesize datasets and interpret results based on paleoethnobotanical analyses. Two of these quizzes will include a laboratory practical component to test your ability to correctly analyze and identify archaeological plant remains.

Writing will determine a major portion of your grade in this course. You will be asked to write two short (5-6 pages, double spaced) analytical papers that demonstrate engagement with theoretical concepts that structure paleoethnobotanical thought. I encourage you to work in this class to improve your ability to write clear, effective, analytical prose, and for this reason I offer you the opportunity to revise these papers within a week of receiving your grade. Your final grade on the paper will be an average of the original and revised papers’ scores. Writing resources at BU include the CAS Center for Writing (http://www.bu.edu/writingprogram/the-writing-center/) and your instructors. For each paper a one-paragraph proposal is required that outlines the focus and sources you will use in the paper; please come to office hours well before paper deadlines to discuss your ideas, outline, or draft paper. You will be given each paper topic at least three weeks before the paper is due.

The final component of your grade is a research report based on your own original analysis of one or more flotation samples from a Near Eastern archaeological site. You are required to spend a minimum of 2 hours per week, beginning in week 3, working in the laboratory on your sample, which must be complete by week 13 of the semester. You will then compose your research report (15-20 pages in length, double-spaced), following a standard format distributed in class, in which you analyze your sample(s) in context with samples analyzed by other members of the class. This report will be due at the final meeting of the class.

There is no final exam in this course; all material is due by the last day of class.
Your final grade will be determined as follows:

**Attendance and participation:** 20%
Quizzes (three): 10% each
Short topic papers (two): 10% each
Research report: 30%
Total grade: 20% + 30% + 20% + 30% = 100%

No late assignments will be accepted without prior approval from the professor or teaching fellow—that means a score of zero on any assignments turned in late. Grading will follow a standard grade distribution: A= 93-100%, A-= 90-92%, B+= 87-89%, B=83-86%, etc. A grade below 60% is an F. All course work must be completed by the scheduled end of the term: no incompletes will be permitted. Consistent improvement in the course will be rewarded and may result in your grade being “nudged” upwards by up to a full grade point (e.g., B to B+), at the professor’s discretion.

**Required Texts**


Both textbooks are required and available on Amazon or at the BU Bookstore. These textbooks are supplemented by a wide variety of other assigned readings; all other supplemental readings will be made accessible through the course website. All readings are to be done by the date assigned on the course syllabus. Most reading assignments will take three to four hours to complete; budget this time into your preparation for each class session.

**Course Schedule**

**Introduction**

**Week 1:** Introduction to paleoethnobotany
Key Questions: What is paleoethnobotany?

Thurs. Sept. 7  
Readings: none

**Taphonomy, Sampling, and Recovery**

**Week 2:** Taphonomy and preservation
Key Questions: How are plant remains preserved in archaeological contexts?

Thurs. Sept. 14  
Readings:
- Marston et al. Chapters 2, 3, and 4

Laboratory Activity: Introduction to laboratory equipment and methods

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**Week 3:** Sampling and recovery of macrobotanical remains
Key Questions: How are seeds and wood recovered archaeologically? What are effective sampling strategies for collecting flotation samples?

**Thurs. Sept. 21**
Readings:
- Pearsall Chapter 2 pp. 44-95
- Marston et al. Chapters 5 and 6

**Laboratory Activity:** Bucket flotation; macrobotanical comparative analysis
**Lab hours on research project begin after class this week**

**Week 4:** Sampling and recovery of microbotanical remains; interpretation 1: ethnoarchaeology
Key Questions: How are microbotanical plant remains recovered? How can historical and present-day plant-use practices inform our interpretations and reconstructions of plant-use in the past?

**Thurs. Sept. 28**
Readings:
- Pearsall Chapter 4 pp. 204-226, 275-314, 356-375
- “The use of dung as fuel: an ethnographic example and an archaeological application” by Naomi F. Miller, 1984, *Pallorant* 10/2:71-79

**Laboratory Activity:** Phytolith extraction; microbotanical comparative analysis
**Quiz 1 – recovery and identification**

**Identification and Quantification**

**Week 5:** Identification and collections management; interpretation 2: social theory
Key Questions: What practices ensure accurate identification of paleoethnobotanical remains? How does social theory inform paleoethnobotanical interpretation?

**Thurs. Oct. 5**
Readings:
- Pearsall Chapter 3 pp. 108-144
- Marston et al. Chapter 7

**Laboratory Activity:** Experimental carbonization; collections processing
**Paper 1 assignment distributed**
**Week 6:** Quantification 1: simple statistics

Key Questions: How do paleoethnobotanists use simple math to quantify and interpret archaeological plant assemblages?

**Thurs. Oct. 12**  
**Readings:**  
- Pearsall Chapter 4 pp. 226-248  
- Marston et al. Chapter 9  
- “Selecting quantitative measurements in paleoethnobotany” by Virginia S. Popper, 1988, in *Current Paleoethnobotany*, edited by Christine A. Hastorf and Virginia S. Popper, pp. 53-71  

**Laboratory Activity:** Introduction to data analysis in Microsoft Excel

**Week 7:** Quantification 2: multivariate statistics

Key Questions: How can the use of multivariate statistical analyses inform paleoethnobotanical problem solving? For what types of data are these analyses appropriate?

**Thurs. Oct. 19**  
**Readings:**  
- Marston et al. Chapter 10  
- “Correspondence analysis and principal components analysis as methods for integrating archaeological plant and animal remains” by Amber M. VanDerwarker, 2010, in *Integrating Zooarchaeology and Paleoethnobotany*, edited by Amber M. VanDerwarker and Tanya M. Peres, pp. 75-95  
- “New plant foods in Roman Britain — dispersal and social access” by Marijke van der Veen et al., 2008, *Environmental Archaeology* 13:11-36  

**Laboratory Activity:** Introduction to descriptive data analysis in PAST v. 3.x

**Paper 1 proposals due in class**

**Week 8:** Intrasite and intersite comparisons; interpretation 3: behavioral ecology

Key Questions: How do we compare and contrast plant assemblages within and between sites? How do theoretical models for human behavior inform our study of decision making in the past?

**Thurs. Oct. 26**  
**Readings:**  
- Marston et al. Chapters 11, 12, and 17  

**Laboratory Activity:** Introduction to multivariate analyses in PAST v. 3.x

**Quiz 2 — quantification**

**Questions and Challenges in Contemporary Paleoethnobotany**

**Week 9:** Domestication; interpretation 4: niche construction

Key Questions: Why and how did humans begin to cultivate plants? What factors influenced people's decisions to target specific plants for use, cultivation, and specialization?

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Thurs. Nov. 2
Readings:
- Marston et al. Chapter 18
- “Core questions in domestication research” by Melinda A. Zeder, 2015, Proceedings of the National Academy of Sciences 112:3191-3198
- “A conversation on agricultural origins: talking past each other in a crowded room” by Melinda A. Zeder and Bruce D. Smith, 2009, Current Anthropology 50:681-691

Laboratory Activity: Introduction to data presentation in Microsoft Excel
Paper 1 due in class
Paper 2 assignment distributed

Week 10: Agriculture
Key Questions: How do we reconstruct agricultural systems from paleoethnobotanical remains? Can agricultural decision making be identified archaeologically?

Thurs. Nov. 9
Readings:
- “Investigating crop processing using phytolith analysis: the example of rice and millets” by Emma L. Harvey and Dorian Q Fuller, 2005, Journal of Archaeological Science 32:739-752

Laboratory Activity: Introduction to data presentation in PAST v. 3.x
Paper 2 proposals due in class

Week 11: Landscape change
Key Questions: How do paleoethnobotanists combine proxy datasets to reconstruct landscape change?

Thurs. Nov. 16
Readings:
- “Archaeological fuel remains as indicators of ancient west Asian agropastoral and land-use systems” by Naomi F. Miller and John M. Marston, 2012, Journal of Arid Environments 86:97-103
- “The significance of prehistoric weed floras for the reconstruction of interrelations of environment and crop husbandry practices during the Late Bronze and Early Iron Ages (1600-700 BC) in the Near East” by Simone Riehl, 2014, in Contemporary Trends in Archaeobotany, edited by Marco Madella, Carla Lancelotti, and Manon Savard, pp. 135-152

Laboratory Activity: Introduction to online data storage and sharing in Filemaker Pro
Quiz 3 – analysis and interpretation
Week 12: **No Class – Thanksgiving Holiday**
Complete flotation sample datasets due online by noon Wed., Nov. 22

Week 13: Integrating archaeological studies of diet and nutrition
Key Questions: What other lines of evidence indicate plant diet? How do archaeologists integrate chemical, molecular, and botanical data to reconstruct individual dietary histories?

Thurs. Nov. 30 Readings:
- Marston et al. Chapters 14 and 15
- “Stable isotopes in archaeobotanical research” by Girolamo Fiorentino et al., 2015, *Vegetation History and Archaeobotany* 24:215-227

Laboratory Activity: Field trip to BU Chemical Instrumentation Center
Paper 2 due

Week 14: Applied paleoethnobotany
Key Questions: What use is paleoethnobotany in addressing the problems of the contemporary world?

Thurs. Dec. 7 Readings:
- *Growing Food in a Hotter, Drier Land* by Gary Paul Nabhan, 2013, Introduction and Chapter 2

Research report due in class
Course Policies

Student Conduct
The purpose of this class is to provide a welcoming and inclusive location for the development and sharing of knowledge. This environment is built on trust and cooperation between students and the instructors. For these reasons, cheating, plagiarism, and disruptive behavior are not tolerated in class. Please understand that plagiarism, in particular, is a serious offense. All students are required to follow the provisions of the BU Academic Conduct Code (http://www.bu.edu/academics/resources/academic-conduct-code/) and the Code of Student Responsibilities (http://www.bu.edu/dos/policies/student-responsibilities/).

Attendance and Lateness
Attendance at class meetings is critical for a thorough understanding of course materials and for success in this class. For this reason, course attendance is mandatory and active participation forms a percentage of the final grade. Do not miss class or laboratory section; if you know in advance you will miss a meeting please discuss this with your teaching fellow as far in advance as possible. Class will begin promptly at 3:35 pm; lateness to class or laboratory section is disruptive to the instructors and your fellow students and will be reflected in your final participation grade. We also respect your busy schedules: in return for your timely arrival in class, we will end class on time at every meeting and strive to ensure that all material is covered on the day for which it is scheduled.

Electronic Device Policy
Students learn in different ways and are comfortable with different technologies. You are welcome to use a laptop, netbook, iPad, or similar in class meetings for note taking and referencing materials related to the class. You may not, however, use these devices for non-course-related purposes or in a way that is distracting to other students in the classroom. If you are found to be doing so, you will be asked to put away the device and may be asked to leave the classroom. The use of cellular telephones (even iPhones) is not permitted in class at any point. Please be sure these devices are silenced and in your pocket or bag for the duration of class. Any ringing devices may be confiscated for the duration of the class meeting. This applies to laboratory section as well as regular class meetings.

Disability Accommodation
If you have a documented disability that requires accommodation within this class, please discuss with the professor, after class or during office hours, how best to adapt class assignments for your learning needs. Please also provide necessary documentation to the professor and your section’s teaching fellow at the earliest date possible. Information regarding this documentation is available from Disability Services, who can be found online at: http://www.bu.edu/disability/