

University of West Florida Quality Enhancement Plan

Project Proposal Narrative

Project Title: Field Methods in Forensic Anthropology: Mapping Component

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Abstract

I propose to offer a forensic anthropology field school in Summer 2009 which will train biological anthropology undergraduate and graduate students in forensic anthropological field methods for the discovery, documentation, and recovery of human skeletal remains from both surface and buried contexts. This proposal seeks funding to support one component of the field school: learning how to generate accurate maps of surface and buried skeletal material. Students will be trained in both low-tech (compass and tape) and high-tech mapping methods. High-tech methods will include the use of an optical survey instrument (Total Station) and application software to create computer-generated maps.

Project Rationale

The undergraduate Biological Anthropology specialization, which was introduced in 2005, requires that students complete a field methods course before graduation. For the first three years, however, no dedicated biological/forensic field school was offered at UWF, so students in the biological track had to meet this requirement by enrolling in a general archaeology field school at UWF or another institution. Feedback from biological anthropology students who completed the UWF terrestrial field school (n=4) or a Mayan archaeology field school in Belize (n=4) indicated that although the students acquired some useful excavation skills, little of what they learned was directly relevant to the recording and recovery of human skeletal remains, especially in forensic contexts.

Last year I offered for the first time a dedicated forensic field school whose goal was to train graduate students and senior undergraduates in the skills required to handle forensic field recoveries. These situations require solid project management skills. Each forensic case is unique, so responders must be able to assess each scene, make an informed decision as to whether skeletal elements are human or not, devise an efficient strategy for locating, recording and recovering remains, work collaboratively as team members with other anthropology students, and with professionals from other fields (forensic investigators from the ME's office, crime scene specialists from law enforcement, dog handlers, etc.). The data collected must be accurate and meet contemporary evidence standards. Finally, responders must be able to communicate the results of their investigations clearly and unambiguously.

The potential benefits to the students who participate are substantial. In addition to the technical skills they will acquire, this project will provide students with valuable hands-on experience in forensic case work, and with opportunities to develop their leadership, project management, and communication skills, hone their professional judgment, and ultimately open doors to post-graduate employment opportunities.

Relationship to QEP Goals

The proposed project addresses all three of the stated goals of the focused Quality Enhancement Plan.

1. To improve student learning of knowledge, skills, and values relevant to Project Management. This is the primary focus of the proposed Forensic Anthropology field school: to help students acquire the requisite skills to undertake forensic recoveries under the supervision of the biological anthropology faculty. These skills include both technical skills (compass use, line search, establishment of grids, setting up/running optical survey instrument, excavation, measurement, field photography etc.) and broader project management skills (ability to assess needs, determine efficient solutions, delegate tasks, contribute constructively to team dynamic, and communicate effectively).

2. To increase use of active learning and student engagement instructional strategies and related assessments for development of Project Management skills, knowledge and values. Active learning opportunities are a major component of the proposed project. Students will receive instruction in relevant field techniques in a traditional classroom setting, and then be required to apply their knowledge and skills initially in a series of “mock” forensic scenes, and finally in a real cemetery excavation. Both direct and indirect assessments will be employed to evaluate the effectiveness of the instructional methods, and future course deliveries will be modified accordingly.

3. Provide opportunities for faculty and staff development related to improving student learning of project management. This project is designed not only to enhance student learning, but faculty development as well. Although project management is one of the domains addressed in other courses I teach, such as Human Osteology, my assessment of student outcomes in the past has focused primarily on assigning a grade to the completed project, without critically evaluating how and why students may not have achieved the desired outcomes or devising pedagogical strategies to improve student success. For the proposed project, student outcomes and assessment measures will play a key role in subsequent course revisions.

Project student learning outcomes

Students who successfully complete the project will be able to:

1. Distinguish between human and non-human skeletal elements (Discipline Knowledge and Skills Domain)
2. Develop an effective and time-efficient strategy for recording and recovering surface-scattered human remains, given situational constraints (Project Management Domain)
3. Complete assigned responsibilities as a team member and contribute positively to task completion (Project Management Domain)
4. Produce an accurate map of a surface scatter of skeletal remains and associated evidence using both high-tech (Total Station) and low-tech (tape and compass) methods (Discipline Knowledge and Skills Domain and Project Management Domain)
5. Make valid suggestions for improvement in process and product (Project Management Domain)

These student learning outcomes are consistent with the Anthropology Program's Academic Learning Compact, which identifies three goals within the Project Management Domain, all of which are addressed here:

- Design and execute projects reasonably within given time constraints
- Develop back-up planning skills
- Collaborate effectively with team members.

Instructional/learning strategy enhancements

UWF's Quality Enhancement Plan (https://nautical.uwf.edu/uwfsacsFiles/library/Quality_Enhancement_Plan_CAB-cdw_2-1-05_Electronic.pdf) outlines the theoretical and philosophical framework supporting its increasing emphasis on enhancing student engagement through active learning. Student engagement, according to the 2001 National Survey of Student Engagement, is based on a number of variables, including degree of academic challenge, active and collaborative learning, student-faculty interaction, and enriching educational experiences. Other research (Chapman 2003, cited in the UWF QEP) indicates that integrating authentic activities into the learning tasks can have a positive effect on student motivation and learning retention. A key component of student engagement is active learning: "problem-solving in real-world contexts, situational exploration, and practice and reinforcement" (QEP, page 8). The proposed project incorporates many of the key components of active learning, including enhanced student-faculty interaction, problem-based learning, collaborative interactions, and self-direction by the learner.

Assessment Plan for the Project

The student learning outcome assessment procedures are as follows:

1. Ability to distinguish human bone from non-human faunal elements (SLO #1) will be assessed in the classroom in the form of a practical lab quiz.
2. Acquisition of survey and mapping skills (SLO #4) will be assessed by direct comparison of each team's field maps with the known distribution of faunal and human remains at that particular site.
3. Both direct and indirect measures will be used to assess project planning and implementation (SLO #2). Student feedback in the post-project debriefing (discussion of problems encountered and solutions devised) will provide indirect evidence of success in planning and implementation, whereas the quality and timeliness of the project products (field maps) will provide a more direct measure.
4. Indirect measures will also be employed to assess SLO #3 and #5. In the post-project debriefing students will be encouraged to constructively critique the effectiveness of their teamwork, and to devise practical solutions to any problems encountered.

Plan for Formative Assessment of the Project

The first offering of the forensic field school in Summer 2008 was essentially a pilot project. Assessment of student learning outcomes from that year has provided data on the effectiveness of different components of the course and this has led to modification of certain instructional elements.

For example, it was determined from the exam results that students had no difficulty differentiating between animal and human bone; furthermore feedback from post-course evaluations indicated that students felt that more time should be devoted to practical field applications rather than classroom instruction. As a result, this year the field school will require students to complete the Human Osteology course as a prerequisite for acceptance to the field school, and the classroom instruction in osteology will be limited to non-human fauna. This will allow more instructional time to be devoted to development of mapping skills

Two of the pilot project SLOs indicated areas for improvement this year: team dynamics and acquisition of mapping skills. The instructors observed that students who were slower in acquiring technical skills tended to be marginalized by the rest of the team. This year I plan to incorporate some formal team-building exercises in the first week of instruction, and evaluate team performance on effective interaction as well as on final products (maps, reports, field notes, etc.).

The mapping component of last year's field school was limited to low-tech compass and tape maps because we had not yet acquired a Total Station. While a perfectly feasible (and actually preferable) method for mapping small, concentrated bone scatters, compass-and-tape methods tend to be less accurate and less efficient for mapping large or widely

dispersed material. The large-scatter maps generated by students last year using the compass-and-tape method were very time-consuming to generate, considerably less accurate than the small-scatter maps, and students reported a high degree of anxiety and frustration during that exercise. Use of a Total Station in a large-scatter context would improve accuracy and efficiency, reduce student frustration, and more closely mirror actual real-life forensic situations. Emphasis will be placed on effective teamwork, planning flexibility, time management, and accuracy of results in assessing this component of the project.

Information dissemination plan

The results of this project will be shared with the UWF campus community at the Quality Enhancement Plan Symposium in Fall 2009. I also plan to make a professional presentation of the forensic field school methods and outcomes at the annual meeting of the American Academy of Forensic Sciences in Seattle, WA, in February of 2010. To my knowledge, few other universities provide undergraduate forensic field training experiences similar to the UWF course. The conference presentation will serve two important functions: it will provide me with critical feedback from other forensic scientists with the ultimate goal of improving course delivery, and it will serve as a recruiting tool to attract undergraduate and graduate students to our program.

Institutionalization plan

Our goal is to make the forensic anthropology field school a permanent component of the undergraduate curriculum in Biological Anthropology. I anticipate that this course will also attract students from other anthropology tracks, such as terrestrial archaeology, since the project management skills acquired will complement their archaeological field training. The course will also serve as a model for a more compressed one-week continuing education course we are developing for delivery to law enforcement professionals.

Resources needed

Budget Item	Description	Unit Cost	Total Item Cost
Sokkia SET 630R	Total station mapping device with tripod, pole and prism	\$ 5, 490.00	\$ 5, 490.00
Funding requested from QEP grant			\$5,000.00
Balance to be paid from PACE grant			\$ 490.00

The sole budget item for our project is a survey/mapping instrument known as a Total Station (Sokkia SET 630R). Total Stations are “state-of-the-art” survey tools that combine the features of an electronic theodolite (transit) with an electronic distance meter. Total Stations employ trigonometry and triangulation to calculate the three-dimensional co-ordinates of objects/features of interest to the mapper. Data collected by the Total Station can then be downloaded to an external computer, which uses application software to generate a map of the surveyed area. Total Stations are increasingly used by archaeologists, crime scene investigators, law enforcement agencies and forensic anthropologists to map archaeological sites, crime and accident scenes, and other sites of interest.

Students will be trained in the use of this instrument to create accurate maps of surface-scattered skeletal remains and to record 3-dimensional provenience of buried remains. Although the Anthropology Department already owns two of these instruments, they will be in use this summer for the Terrestrial Archaeology field school and for the Archaeology Institute contract archaeology projects, and therefore unavailable to us.

The total cost of the survey instrument exceeds the maximum of \$5,000.00 provided by the QEP. The balance of the cost of the Total Station, and the remainder of the equipment and supplies required for the project, including hand-mapping tools such as compasses, tapes and survey pins and comparative skeletal specimens both human and faunal will be covered by a separate PACE grant which was awarded in Spring 2008.

Dr. Curtin’s salary will be covered by the summer teaching budget.

Timeline for project activities and events

The forensic anthropology field school will be offered in Summer 2009 (Term E), and will run for five weeks, from May 11 through June 12, Monday through Friday from 8 a.m. until 5 p.m. Students will spend the first week in the classroom learning (among other things) the principles of field survey, mapping, recording, and recovery, and how to use the Total Station.

During the second week students will have the opportunity to apply what they have learned to “mock” forensic scenes consisting of surface scatters of bones and related items. Students will work in teams to locate, map, record, and recover all relevant pieces of evidence at each scene. Small, concentrated scatters will be mapped using hand-held compasses and measuring tapes. Large, widely dispersed bone scatters will be mapped using the Total Station. The accuracy of the generated maps will be one criterion for assessing their mastery of the skills learned. Student teams will also participate in a “debriefing” during which they will compare their project products, and discuss the problems they encountered during the exercise, as well as the solutions they devised.

During the third week, students will participate in the excavation of “mock” clandestine graves, again using the Total Station to record 3-dimensional provenience of features of interest. The final two weeks of the field school will be spent at St. Michael’s Cemetery

in downtown Pensacola, where students will conduct test excavations to determine the nature of a large, sub-surface anomaly previously identified during a survey of the cemetery using remote-sensing equipment (ground-penetrating radar), and suspected to represent a mass grave of yellow fever victims dating to the late 19th century. During this segment of the field school they will be afforded additional opportunities to hone their skills on the Total Station, which will be used to determine 3-dimensional provenience of all exposed materials.

Following the completion of the field school, indirect assessment measures will be addressed. All students will be asked to complete an evaluation of their field experience, addressing standard variables such as communication of instructors' expectations, facilitation of learning, communication of ideas and information, course assignments, grading practices, etc. Students who have participated in other field schools will also be asked to evaluate the strengths and weaknesses of this field experience compared to their previous ones. These data will be used to improve the delivery of next year's forensic field school.