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Project description

Introduction

Last year a new Interdisciplinary Environmental Science minor was approved by the Faculty of Rhodes College to begin in the Fall 2006. This minor will offer both science and non-science majors the opportunity to learn and integrate environmental issues into their study curriculum. One of the two required introductory courses will be Biology 105 – Environmental Science, a new course with laboratories. The focus of the laboratories will be the estimation of ecosystem services, such as purification of water and air regulation of climate, and production and maintenance of biodiversity. In the spring 2005, funds from Associated Colleges of the South were used to design a series of laboratories to complement the lectures and this work is still underway and will be completed by April 2006.

The laboratories field site is Overton Park, a 170 acres of forest located across the street from Rhodes College. Overton Park, the largest green space in urban Memphis, has been designated as a State of Tennessee Dedicated Level I Arboretum. Faculty and students of Rhodes College have been working on GIS inventory of invasives and their removal from the park. Our class project will be the first to estimate the contribution of this forested ecosystem to local air and water qualities. The significance of this project to the environmental knowledge of Memphians has become more relevant in the view of a recent proposal by the City of Memphis to lease out urban green spaces or to develop them.

Teaching assistant

Since August 2005, an undergraduate student, Adam Bonhert, has worked with me on data collection and analysis of the vegetation and water quality at Overton Park. Together we have selected vegetation plots and created a GIS map containing information such as basal areas and species diversity. We have also written the first of a series of lab exercises that will be used by the students in the Fall 2006.

With this proposal I request fund to offer Adam a teaching assistantship to contribute to the teaching of the laboratories in the Fall 2006. Adam has acquired such a unique knowledge and experience in the area of ecosystem services valuation that his involvement will add to the strength of the class and the promotion of the Environmental Sciences minor at Rhodes College. However, his involvement as teaching assistant will also provide the opportunity to complete the research already begun on the evaluation of the ecosystem services provided by Overton Park.

One of the most important components of the new laboratories will be the compilation of the semester long research by the students in a publishable document. This task will require more time that is available to the teacher. Adam, therefore, will be in charge of collecting, revising, editing the class data and, where needed, do additional work. His work will generate a paper that will be available to anyone interested in developing environmental laboratories on ecosystem services. To our knowledge, no such an ecosystem services valuation has been done for any of the forested areas in Memphis and its surrounding region. Therefore, we plan to disseminate our findings to local educational institutions, to supply additional material to their environmental sciences classes and strengthen their students' appreciation of local natural ecosystems.

Adam will greatly benefit through his involvement. First of all, he will gain invaluable firsthand experience in the instruction of others. There is nothing quite as challenging as helping others to understand new concepts. In actively participating in the instruction of the students, he will also be able to grasp the material far better than if he had merely just read of it. He will acquire valuable skills as will work with the professor and the students. Ultimately, Adam will gain from his involvement a greater appreciation for research and teaching of environmental science.

I anticipated that Adam will work for 10 hours a week. Because of his previous experience, he will be paid \$8.00/hour. The total amount for the semester will be \$840 for 12 weeks.