PROPOSAL TO THE COLLEGE OF AGRICULTURE FOR SUPPORT FROM STUDENT COMPUTER FEES

PROJECT TITLE:
Enhancing the Soils Learning Center in Room 1102 Agronomy Hall

PROPOSING UNIT
Department of Agronomy

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PROJECT OVERVIEW AND EXPECTED BENEFIT

A. Provide a description and intended purpose for all project expenditures and identify expenditures from College Pool funds.

Instruction of the introductory soils course in the Agronomy department transitioned from the use of slides to an interactive computer-assisted format in 1993. The philosophy behind the Student Oriented Individualized Learning of Soils (SOILS) is that student learning is enhanced when they feel in control of their own learning. Course information in digitized audio visual format is developed and placed on a dedicated server which is maintained by the computer support staff of the Agronomy Department. Students access course information in a self taught process on a set of networked computers in the Soils Learning Center which is housed in room 1102 Agronomy Hall. While this innovative multimedia instructional system facilitates the teaching of large classes, it also permits the simultaneous offering of the following three introductory soils courses: Agron 154, introductory soils for agronomy and related sciences; Agron 155, soils for horticulture students and, Agron 156, soils for landscape architects. While we teach the same principles of soil science in all three courses, application of soil principles is tailored to each professional area. An off campus version of Agron 154 is offered through distance learning. A general soils course that will satisfy the university science requirement is in development and will be offered in the Soils Learning Center in the same self taught mode.

A set of 34 computers and one inkjet printer was purchased for the Soils Learning Center in room 1102 Agronomy in 1998. Students use the services of the Learning Center for their interactive self study to prepare for quizzes and exams. Although students can access course information from the World Wide Web and study at their own pace, they unequivocally use the facilities in the learning center in order to obtain help from Lab Tutors. It has been documented that on the average there are 3000 student-visits to the Learning Center every semester (Appendix A). Since the fall of 2004, a new windows-based mapping software, Winsoils, has been developed to replace an old DOS-based ISPAID. Students use this software to identify, select, and draw fields from a 640 acre tract of land as part of the land management project which is a requirement of the courses. The digitally outlined fields are then printed on the inkjet printer.

It is the general consensus among the Agronomy Department Teaching Panel members that the computers in the Learning Center need to be replaced. An end of semester ad hoc survey of students enrolled in the courses showed student performance in the course would be enhanced and students will be better served if the existing computers could be replaced with those with faster processors and higher memory capacity (Appendix B). Another assessment by the computer support staff of the Agronomy Department suggests the computers are several years out of production. Their components are beginning to fail and replacement parts are difficult to find. The lack of hard drive space requires many hours of maintenance several times each semester to delete temporary files of the large number of students in order for computers to remain operational. Additionally, the low capacity of the computers causes the recently developed mapping software, Winsoils, to run slowly. This frustrates students because it increases the amount of time required to complete their land management projects. The next stage in the courseware development is the introduction of video streams to expose students to farm and other field activities. This will be necessary to address the changing demographics of students who will be enrolling in these courses in the future. More students from urban areas will

be taking the classes. We are also developing an ion exchange visualization module that will facilitate the comprehension of cation and anion exchange processes on soil surfaces. These new technologies will require computers with higher memory capacities.

The purpose of this proposal is to request support from Central Pool funds to upgrade and enhance the Soils Learning Center through the acquisition of 28 replacement computers, and one laser printer. The total amount requested is $31,650.23.

B. Describe specifically how the proposed facilities or services will be made available to students

1. Specify the hours when this facility or service will be available for general student use

The Soils Learning Center is open 41 hours a week according to the following schedule: Monday 9:00 a.m. to 5:00 p.m.; Tuesday and Wednesday 9:00 a.m. to 8:00 p.m.; Thursday 9:00 a.m. to 5:00 p.m. and; Friday 9:00 a.m. to 12:00 noon. While open, the instructor and other Lab Tutors are available to answer students' questions and administer quizzes. Students can and do use the Learning Center outside of the stipulated hours through special arrangements. Although they do not have access to course material, students who are not enrolled in any of the introductory soils classes have access to facilities during hours when the center is open.

2. Identify the Number of Students that will be able to use the facility or served simultaneously during the hours

Facilities in the Learning Center will be used by students enrolled in any of the three introductory soils courses as well as other students who want access to the internet. Our long-term records based on 9 semesters of data suggest that an average of 221 students use the Learning Center each week (Appendix A). At an average of 2 hours per student visit, we estimate that the Learning Center is used at the rate of 442 hours per week

3. Identify the student population that should benefit from the proposal

The upgraded facilities will benefit students from Colleges of Agriculture, Design and Engineering. Within the College of Agriculture, students from the following departments will be beneficiaries: Agronomy, Animal Science, Agricultural Education and Studies, Forestry, Environmental Science, and Agricultural Systems Technology. Students outside of the College of Agriculture who will benefit from the project include those from the College of Design and the Department of Agricultural and Biosystems Engineering.

C. Will the proposed project require new Technologies?

No new technologies are required. Computers requested will be used to incorporate technologies already developed and can adapt to courseware that is being developed.

D. Identify university facilities that would be needed for the proposed project. Specify the building(s) and room number. A scaled sketch for the floor plan showing the location of equipment should be appended.

The Soils Learning Center is located in room 1102 Agronomy Hall (Appendix C Floor Plan). The existing furniture will be used. Any retrofitting to accommodate requested computers and accessories will be funded through departmental funds.

III. Support and Maintenance – Anticipated costs for on-going operation.

Support and maintenance of the Soils Learning Center will be provided by the Department of Agronomy. The day-to-day supervision of the center will be carried out through a budgeted position within the department. The Baker Laboratory established through the Agronomy Endowment fund provides computer support to the department. Personnel from this unit will provide logistical and technical support and maintain computers in the Soils Learning Center.

IV. Budget

Table 1. Full Itemized Budget

Description of Item	Quantity	Unit Cost	Funds Requested from College of Agriculture Pool	Agronomy Matching Funds
OptiPlex GX620 Ultra Small Form Factor; 17" LCD	28	$1,099.52	$30,786.56	
OptiPlex GX620 Ultra Small Form Factor; 17" LCD	6	$1,099.52		$6,597.12
Linksys 5-Port 10/100 Switch	2	$28.95		$57.90
Linksys 16-Port 10/100 Switch	3	$67.56		$202.68
HP Color Laser Jet 3800N Printer	1	$863.67	$863.67	
Total Cost			$31,650.23	$6,857.70

Table 2. Minimum Feasible Itemized Budget

Description of Item	Quantity	Unit Cost	Funds Requested from College of Agriculture Pool	Agronomy Matching Funds
OptiPlex GX620 Ultra Small Form Factor; 17" LCD	26	$1,099.52	$28,587.52	
OptiPlex GX620 Ultra Small Form Factor; 17" LCD	8	$1,099.52		$8,796.16
Linksys 5-Port 10/100 Switch	2	$28.95		$57.90
Linksys 16-Port 10/100 Switch	3	$67.56		$202.68
HP Color Laser Jet 3800N Printer	1	$863.67	$863.67	
Total Cost			$29,451.19	$9,056.74

Appendix A. Numbers of Students Using the Soils Learning Center

Term	F2001**	S2002	F2002	S2003	F2003	S2004	F2004	S2005	F2005
Week1	246	311	291	270	266	216	211	203	192
Week2	255	273	274	331	252	324	223	217	203
Week3	269	270	256	204	252	280	220	234	169
Week4	253	257	260	220	218	254	199	199	154
Week5	240	266	211	224	212	232	165	186	170
Week6	237	232	205	230	231	202	176	168	176
Week7	240	233	231	261	237	208	195	194	203
Week8	288	238	256	253	244	245	231	229	207
Week9	281	288	208	260	265	226	207	212	177
Week10	306	289	202	263	241	250	209	192	189
Week11	248	334	261	277	276	248	194	203	202
Week12	192	286	222	238	278	224	273	191	192
Week13	393	233	220	238	176	211	160	184	141
Week14	192	253	229	245	226	246	191	198	157
Week15	163	29	52	42	64	91	99	83	64
Total	3803	3792	3378	3556	3438	3457	2953	2893	2596

**F = Fall semester
S = Spring semester

Appendix B

Soils Learning Center – Student Comments

Having faster computers in the Agronomy Lab would allow students to access more information that would better prepare them for projects and tests.

CASE CIRCLE
circlec@iastate.edu

The computers in the Agron. 154 soils lab can be very frustrating to use. Because of how slow there are, it can make learning and studying the weekly material very difficult. I know how vital computers are to this learning lab and feel that this would be a great investment ISU. The computers in this lab are essentail to student gaining valuable soils knowledge.

Hope that this helps!
If you need anything else, please email

Nathan Underwood
underwod@iastate.edu

The time it took to load a map from the 154 Lab sometimes lasted up to 10 minutes.

Ross Ennen

I agree that the computers need to be replaced because the soils learning center is such an active place and is essential to achieving excellence in any of the agronomy courses. The students that use the lab deserve the best equipment possible because the lab is so highly important and trafficked. Faster operating speeds would be well appreciated by all students and faculty.

Thomas Thurston

I did notice that during drills and also when attempting to log in to the computers they were very sluggish and unresponsive. Many times i had to leave a machine attempting to log in and try on a different one. Also when opening multiple windows at the same time the computer also because sluggish and unresponsive and a pain to use.

Patrick Bergstrom

I feel that new computers in the Agronomy labs will be an asset to the different courses because of the frustration the old computers cause. For example, when using a field mapping program, the system froze while I was in the middle of a doing my work. I had to restart the computer and start over.

Ashley Nelson

I believe that the SOILS center was probably one of the greatest teaching tools that the Agronomy department possesses. It was a very valuable learning tool for me and helped me fully grasp the concepts trying to be relayed.

Shane Edelen

The computers in the Agronomy lab definitely require an update. They are slow and dated. When I tried to do my field mapping project it took forever and with new computers it probably could have been done in half the time.

Dylan Jones

I was in Agronomy 154 last semester and I'm in 354 this semester. It is a huge pain when you go into the lab to do homework and your computer is slow and sometimes freezes on you, especially when you are using the mapping program. It takes up your time in which you could be doing something else and in the mapping program when it freezes you loose your fields. New computers are a must!

Brenna Knepper

Appendix C

Floor Plan of Soils Learning Center