

**Proposal to Equip New Mathematics Department Computer Lab
(250 Carver)**

4th Priority – Creating New General Purpose Computer Laboratories

Mathematics Department,
Iowa State University

College of Liberal Arts and Sciences,
Iowa State University

Dr. Fritz Keinert, Project Leader
e-mail: keinert@iastate.edu
office: (515) 294 – 5223

Tim Nguyen-Pham, Computer Support Specialist

Dr. Justin Peters, Mathematics Department Chair

College of Liberal Arts and Sciences

PROJECT OVERVIEW

As a result of the space reallocation in Carver, the Mathematics Department is acquiring space for a new public computer lab on the second floor of Carver. We are requesting funds to equip and staff this new lab.

Since this represents a major new computer facility for the university, it is appropriate to provide some background as to how the need for this came about. Nearly four years ago the Mathematics Department received a \$200,000 grant from the Pew Foundation to revise the Math 150 course, *Discrete Mathematics for Business and the Social Sciences*. One condition for receiving this grant was that we would convert the entire course to web-based format, to demonstrate the feasibility of such a large-scale conversion. Vice-Provost Howard Shapiro assured both the Pew Foundation and the Mathematics Department that the university would provide support for this.

The redesign has been completed, and beginning with the current term the course is now fully web-based. However, for future semesters, additional computer lab space is essential. The existing Mathematics Computer Lab in 449 Carver is already oversubscribed. Thanks to tight scheduling this spring, we were able to accommodate all the web sections of Math 150 as well as Math 140/141/142 in the 449 Carver Lab, but the demand for Math 150 in fall is anticipated to be twice what it is this semester.

The new computer lab has been part of the Mathematics Department's planning for several years, and indeed is now officially part of the university plan for reallocation of space in Carver. In addition to the Math 150 course and the Math 140/141/142 courses, the lab is to be available to Math classes, so faculty can schedule computing projects in the lab. During times when no classes are scheduled, the lab will be open to any student registered at ISU.

We view it as critical to open the new computer lab as soon as possible, for the reasons described above. Obviously, the additional lab space the Department is receiving from the university is useless without computer equipment. We hope that equipping the new lab will be a high priority of CAC funding.

Originally we were anticipating the new computer lab to be in the remodeled Carver 301. We submitted our LASCAC proposal under this assumption. Since the new lab would not be open until Spring 2005, LASCAC funded only about 50% of the request.

However, new developments have caused the new computer lab to be located in Carver 250. This room is already furnished and wired for technology; the only thing missing is the computers. Due to the change in plans, the new lab space will be ready for Fall 2004, provided the lab is equipped. Therefore, this proposal will provide the other 50% of the startup expenses for Carver 250.

Furthermore, when the Department submitted the LASCAC proposal, the new guidelines for

equipment disposal surcharge had not yet been announced. In order to equip this lab, these costs must be paid on the new computers. This proposal also provides for this cost.

Finally, we are requesting funds to staff the lab for one semester. We understand that traditionally CAC does not fund lab monitors. However, in order to have the lab open and available for general student use, a lab monitor must be present to supervise the lab. We have received LASCAC funding for one semester and for Summer Sessions I and II. We are requesting funding for the other semester. The lab will be staffed 72 hours per week, and we expect 45 of these hours to be open to general student use.

EDUCATIONAL PURPOSE

The primary purpose of the Mathematics Computer Lab in 250 Carver will be to provide instructional support for mathematics classes. During the 2003-4 academic year we are offering web-based sections of Math 10 (High School Algebra), Math 140 (College Algebra), 141 (Trigonometry), 142 (Trigonometry and Analytical Geometry), and 150 (Discrete Mathematics for Business & Social Sciences). This academic year (Fall 2003 and Spring 2004) over 1500 students are taking (or have taken) a web-based mathematics course. In each of these courses, students are tested frequently and all exams are administered in the lab. The secondary purpose will be to provide general public access to computers when the lab is not being used by mathematics classes.

Currently, all web-based sections of Math courses meet in the computer lab in 449 Carver. By adding another lab, we will be able to comfortably maintain and even increase the number of students taking web-based sections of Math 10, 140/141/142, and 150. Our estimates for student enrollment for Fall 2005 for these five classes are about 2400 total students. With two functioning labs, we expect 1800 of these students to be in web-based sections of these courses.

It is important to note that one cannot estimate the volume of lab use simply by assuming that each student in a web-based course uses the lab one hour per week. A typical student in a web-based course spends 1 scheduled hour in the lab per week plus another 1-2 hours taking (and re-taking) tests on the MapleTA system. Students have the ability to retake all of their tests during the course in order to improve their grade. Most students exercise this option, which results in a drastic increase in lab use.

LAB INFORMATION

The lab in 250 Carver will contain 49 PC computers. The software on these computers will include Microsoft Office XP, Internet Explorer, FileZilla, Hummingbird Connectivity, and Geometer's Sketchpad. The lab will also have one laser printer.

We anticipate the lab in 250 Carver to function as a duplicate of the 449 Carver lab. We therefore expect the lab to be reserved for use by web-based math courses for approximately 25 hours per week, and open for general student use approximately 45 hours per week.

We have a security system in 449 Carver whereby students log on to the computers using their ISU Net-id. This allows us to control what software is installed and set a print quota for each user. We have tweaked this security system over the last two years in 449 Carver and are confident in its stability. This security system can easily be installed on the PCs in the new lab.

Creating a second “mirror image” lab will allow us to accommodate all the groups who wish to use our computer lab: students in web-based mathematics courses, students in non-web-based mathematics courses, mathematics graduate students and faculty, and the general undergraduate student population.

**Table 1. Full Itemized Budget
(Costs for the Entire Project)**

Item Description	Number	Unit Cost	Total Cost by Funding Soucre	
			Central Pool	LASCAC
Hardware and Accessories				
Dell PC Computers	49	\$1,844.	\$45,178.	\$45,178.
Dell Linux Server	1	8,872.	4,436.	4,436.
HP LaserJet 4300n Printer	1	1,763.	877.	886.
Other Expenses				
Monitor Locks	49	32.	1,568.	
Computer Locks	49	3.	147.	
Equipment Disposal (3% of total hardware cost)			3,030.	
Lab Monitor Wages	2544 hours	6.5 / hour	7,416.	9,120.
Total Request			\$62,652.	\$59,620.

Table 2. Minimum Feasible Itemized Budget

(Costs for Minimum Feasible Part of the Project)

Item Description	Number	Unit Cost	Total Cost by Funding Soucre	
			Central Pool	LASCAC
Hardware and Accessories				
Dell PC Computers	36	\$1,844.	\$21,206.	\$45,178.
Dell Linux Server	1	8,872.	4,436.	4,436.
HP LaserJet 4300n Printer	1	1,763.	877.	886.
Other Expenses				
Monitor Locks	36	32.	1,152.	
Computer Locks	36	3.	108.	
Equipment Disposal (3% of total hardware cost)			2,310.	
Lab Monitor Wages	2000 hours	6.5 / hour	3,880.	9,120.
Total Request			\$31,659.	\$59,620.