

UT College of Natural Sciences

Information Technology Vision Plan

2007-2008

Note to the reader: This report is intended to be read on-line. Hyperlinks located throughout the document provide access to in-depth information, narratives of specific projects, and photographs of facilities located on the College of Natural Sciences web site.

Overview of Facilities

The [College of Natural Sciences](#) is expansive. On the main campus, we occupy thirteen buildings and have a presence in seven more. Our facilities include [McDonald Observatory](#), [Lady Bird Johnson Wildflower Center](#), [Texas Memorial Museum](#), [Brackenridge Field Lab](#), and the [Marine Sciences Institute](#). All of our facilities enrich the educational experience of our students.

Technology Classrooms

The College of Natural Sciences has 54 general purpose classrooms, all with standardized teaching technology. Additionally, departments have more than 33 classrooms and seminar rooms, most of which are equipped with standardized technology. Web resources: [inventory of general purpose classrooms](#) and [inventory of departmental classrooms](#).

Computer Labs

The College of Natural Sciences has 31 computer labs with about 750 computers. Of these, four labs (WEL 2.302, RLM 7.306, ESB 101, and ESB 103) having a total of 177 computers are open to every UT student, regardless of major and current coursework. Web resources: [inventory of computer labs](#) and [information about printing in labs](#).

Science Labs

Students experience what they learn in the classroom in the college's more than 75 teaching labs, many of which include information technology. Computers are used to control scientific equipment, gather and analyze experimental data, and create and print lab reports. Web resource: [inventory of science labs](#).

Wired and Wireless Network

The College of Natural Sciences has the largest 802.11g (54Mbps) wireless network on campus, covering virtually 100% of its dozen buildings on main campus. More than 20 telecom closets filled with networking electronics provide 10/100 and gigE wired networking to classrooms, laboratories, and offices. Web resource: [network overview](#).

Specialized Facilities

Several departments, as well as the dean's office, have multimedia labs offering students access to high-end computers with specialized software, large format printers, color printers, and scanners. Most departments run their own servers, providing web space, file storage, and e-mail to students.

Maintaining Facilities

The College of Natural Sciences has been entrusted with millions of dollars of student fee money over the last decade, and we are dedicated to protecting that investment for the benefit of current and future students. Maintaining instructional facilities and repairing/replacing equipment as it ages is a huge expense.

Some examples: The college places more than 1,000 computers in front of students. With a four year life cycle, 250 must be replaced each year at a cost of around \$300,000. The college has more than 100 LCD projectors in its technology classrooms and science labs. Replacing aging projectors at a cost of \$4,000 each costs \$100,000 a year. Simply replacing projector lamps when they burn out costs more than \$50,000 per year.

The college funds two full-time staff and 25 student assistants to maintain its classrooms. We employ off-campus specialists to clean the fabrics and floors in our rooms, remove gum and food stains, and repair and repaint when needed. Web resources: [Classroom Maintenance and User Support Team](#)

Innovation

In addition to maintaining its existing facilities, the College of Natural Sciences uses ITAC funds to support innovative uses of information technology in its instructional programs. The college has leapfrogged traditional Podcasting and provided its students with recorded lectures that include multiple video windows in addition to audio. Students can now watch a recording of their instructor working a math or science problem on a document camera while listening to the explanation. Web resource: [Lectures on Demand](#) and [news story](#)

Technology is enriching the experience of students in science labs. Cameras attached to microscopes allow the instructor to project the image from any microscope onto the projection screen for viewing and discussion by the entire class. Scientific equipment now interfaces directly with computers, so students in labs can focus on learning instead of transcribing and graphing data.

Natural Sciences has led the university in the use of student response systems, which allow faculty to ask students questions during class to identify misunderstandings or miscommunications. This year, every general purpose classroom will be equipped with a new radio frequency student response system from eInstruction.

Information technology provided with ITAC funds plays an important part in several innovative programs in our college, including the [Freshman Research Initiative](#), [UTeach](#), and the [Texas Interdisciplinary Plan \(TIP\)](#).

Collaboration

The College of Natural Sciences is fortunate to have Dr. Kurt Bartelmehs on its staff. Dr. Bartelmehs designed and built the university's first standardized technology classroom (GEO 100) in 1998. In addition to building all the technology classrooms in Natural Sciences, Dr. Bartelmehs had donated his time to build technology classrooms in the School of Nursing, the College of Education, the Harry Ransom Center, Information Technology Services, UT Physical Plant, and the UT Elementary School.

This year the College of Natural Sciences has partnered with the College of Engineering and the School of Business to acquire a site license for the popular Mathematica software. Students will be able to download and install the software on their own computers at no cost.

The College of Natural Sciences has worked with the Division of Instructional Innovation and Assessment (DIIA) in selecting a standardized student response system. Natural Sciences will equip every general purpose classroom with this system.

The College of Natural Sciences regularly contributes to the hardware and software needs of the ITS Network Operations Center, which benefits our entire campus.

Although the Jackson School of Geosciences is now separate from the College of Natural Sciences, we continue to collaborate on information technology. Natural Sciences maintains the Jackson School's classrooms and provides help desk services to faculty teaching in those rooms.

Serving the Entire University

Student fee money spent by the College of Natural Sciences benefits not only science and math majors, but students and faculty from across the university. Faculty from outside our college teach in our general purpose classrooms, using the teaching technology and taking advantage of our help desk. Student organizations regularly use our auditoriums in the evenings and on weekend. Virtually every undergraduate will visit our science labs and computer labs when they take the math and science courses required for their degree. We even operate special laboratories for students from other colleges, such as physics labs for engineering majors and a chemistry lab for nursing students. Our student study areas, wireless network, and joint-use computer labs are resources for every student on campus.

Synergy of Multiple Funding Sources

The College of Natural Sciences combines revenue from multiple student fees (including the ITAC fee, the CNS IT fee, and the CNS Equipment Fee) to accomplish projects that would have once been impossible. For every dollar of ITAC funding received, the college invests more than \$1.50 of its own IT fees.

ITAC provides the A/V technology in classrooms that are renovated using other fees. ITAC provides the computers that control scientific instruments in renovated teaching labs. ITAC provides the high-speed wireless networking in newly created student study area. Web resources: [renovation of Welch Hall auditoriums](#), [renovation of introductory Biology labs in Painter](#), [creation of student study areas](#).

Noteworthy 2006-2007 Expenditures

Our 2006-2007 ITAC funds were spent largely as outlined in our 2006-2007 vision plan. While it is impractical to list every item purchased with last year's ITAC funds, a few large projects are worth listing.

- Standardized A/V technology was added to fourteen departmental classrooms, conference rooms, and teaching labs located in nine buildings.
- Automated lecture recording systems were added to four large auditoriums in Welch Hall, bringing the total number of auditoriums equipped to five.
- All computers used by students in the UTeach program were replaced, including 56 laptops for use in classrooms and science labs and 14 desktop computers in the UTeach computer lab.
- Our high-speed (54MBps) wireless network was extended to include every building in the college and all outside spaces where students gather.

Specific Funding Requests for 2007-2008

A/V Technology for Science Labs and Classrooms: \$150,000

We plan to add standardized A/V technology to a dozen undergraduate teaching labs and classrooms at a cost of about \$12,000 each. The College will use local funds to pay the staff who assemble, install, and maintain this equipment.

Existing Technology Classrooms: Upgrades and Operation: \$250,000

Each year, we must replace about one quarter of the more than 100 LCD projectors in our classrooms. We also replace microphones, control systems, touch screens, VCR/DVD players, etc. And, each year we use hundreds of projector bulbs and thousands of batteries.

Freshman Research Initiative Labs: \$100,000

We are establishing new science labs to give freshmen experience in doing scientific research. The scientific equipment in these labs requires dedicated computers, specialized software, and interface cards.

Replacement of Aging Computers: \$300,000

One quarter of our approximately 1,000 computers in computer labs, science labs, and technology classrooms need replacement each year. We budget \$1,250 for each PC and \$1,300 for each Apple.

Network Upgrades and Expansion: \$250,000

By virtue of our size, the College of Natural Sciences has the largest wired and wireless network on campus. Each year we must replace about one fourth of our network electronics and expand our network to meet growing demands. We expect to replace aging electronics in several buildings next year including Welch Hall. Each switch costs about \$3,000 and each wireless access point costs about \$1,000.

Lecture Recording Systems: \$100,000

We plan to expand our existing lecture recording systems into large auditoriums in RLM, PAI, and GEA. This will give faculty teaching in all our large auditoriums the option of recording their lectures and making them available on the web.

UT Homework Service Software Rewrite: \$100,000

The Homework Service provides web-based homework and review problems to students in Physics, Mathematics, Chemistry, and Biological Sciences. It is used by thousands of students each year. The software has become outdated and difficult to maintain. We are contracting with an off-campus consultant to replace the existing software with a new system that has improved functionality.

Servers, Storage, and Backup: \$100,000

In addition to the computers in our general purpose labs, we contribute to the cost of departmental servers that host web pages and files, store class related information, and move email between students and faculty. We also contribute to the systems that back up the data on these servers.

Software: \$50,000

Students in our computer labs and science labs have a wide variety of licensed software available for their use, including mathematical software (e.g., Mathematica), statistical analysis software (e.g., SPSS), web authoring software (e.g., DreamWeaver), and image editing software (e.g., Photoshop), as well as specialized scientific applications.

TOTAL REQUEST: \$1,400,000