

College of Pharmacy Information Technology Vision Plan 2006-2007

Summary of Requests	2
Overview of Current Programs and Infrastructure	3
Use of Previous Academic Year Allocations	9
Needs and Proposed Use of Funds	11

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College of Pharmacy
 Information Technology Vision Plan
 2006-2007

Summary of Requests

Note that each of these requests is detailed later in this document.

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|---|----------|
| 1. Continue life-cycle replacement of lab PCs----- | \$20,000 |
| 2. Remodel/upgrade PHR 2.214 ----- | \$10,000 |
| 3. Integrate Classroom Performance System (CPS) ----- | \$20,000 |
| 4. Classroom technology maintenance/upgrade (Departmental) ----- | \$20,000 |
| 5. Equip two classrooms for self-service video recording (Gen'l Purpose)- | \$36,500 |
| 6. Classroom technology maintenance/upgrade (General Purpose)----- | \$20,000 |
| 7. Convert PHR 3.106 video to SDI (digital) video standard----- | \$40,000 |

Infrastructure

- | | |
|--|----------|
| 8. Data network projects----- | \$20,000 |
| 9. Purchase new codec for PHR 3.106----- | \$15,000 |

Total requested: \$201,500

Overview of Current Programs and Infrastructure

Vision/Mission/Goals of Unit

The UT College of Pharmacy Learning Resource Center is responsible for practically all academic information technology support within the College. Its mission statement, reproduced here from the College's website, is a simple one:

Mission

The mission of the Learning Resource Center of the College of Pharmacy is three-fold:

- to support and maintain a reliable and modern instructional technology infrastructure;
- to offer dependable, outstanding service to faculty, students and staff in specific, identified priority areas; and
- to provide professional training and consulting on using technology for productivity and education.

Services

The LRC makes its mission operational by supporting:

- live two-way and multi-point interactive video conferencing
- analog and digital delivery of recorded Pharmacy classes
- computer and audio/visual support for classes
- a student computer laboratory
- an instructional materials development facility
- a student media library
- a computer laboratory classroom
- the College website
- training and consulting in a variety of technical areas
- faculty and staff desktop and laptop computers

Infrastructure

The College of Pharmacy operates a full-time computer lab, a computer classroom (available until 3:00 as a General Purpose Classroom), and an audiovisual library that houses computers used for streaming video and general use as well as VCRs and DVD players:

Room	OS	No. of Stations
PHR 3.116	Win XP	19
PHR 2.116	Win XP	23
PHR 3.114	Mac OS X	8

Note that, thanks to a special ITAC appropriation two years ago, the 23 computers in PHR 2.116 were replaced and the room was equipped with a ceiling-mounted data projector, speakers, and switching system. The latter facilitates the use of laptop computers, overhead cameras, and a DVD/VCR player, all of which are available upon request.

Pharmacy computer lab 3.116 will be remodeled during early summer 2006, increasing its capacity by about a third. This project is described in more detail later in this document.

The standard complement of software in both labs includes the Microsoft Office suite, web browsers (including specialized plug-ins for media types requested by faculty), A.D.A.M. software for studying anatomy, and a few other helpful utilities such as QuickTime. LabMan is used to manage the labs.

In the past, Adobe Acrobat and Photoshop were available to students and others by the use of keyserving. This has proven to be a popular service, as well as a very cost-efficient one. During late 2005 the keyserving software was expanded to include the entire Adobe Creative Suite CS. In addition to Photoshop and Acrobat, the suite included Illustrator, InDesign, and a few other useful utilities. This represents a significant enhancement to the keyserved offerings.

Technology Auditoriums and Classrooms

The College of Pharmacy had one of the first Technology Classrooms on the UT Austin Campus. In 1997, when it was significantly remodeled to bring it to its current configuration, it represented the state of the art in distance education and computer-based teaching facilities on campus. However, as with all such spaces, it must be aggressively maintained at a significant annual cost.

A second room, PHR 4.114, is a fully functional videoconferencing and computer-instruction space. Last year, we requested funds to purchase new cameras and architecturally update the space. This project was completed and is described elsewhere in this document.

A third room, PHR 2.208, has been added to the inventory of videoconferencing spaces. This completes the College's complement of video facilities: One auditorium-style large room, one auditorium-style medium room, and a compact boardroom-style facility.

Other rooms have received and will continue to receive audiovisual upgrades in an effort to increase utilization while decreasing demands on staff time. The College placed campus-standard Technology Classroom Consoles in three PHR-located General Purpose Classrooms and has installed projectors and ancillary equipment, described below as PHR standard, in nearly all other instructional spaces.

Note that an additional classroom, 2.214, was added to the inventory of classrooms in Fall 2005. A request to fund bringing this room up to the Pharmacy audiovisual standard as part of departmental classroom maintenance appears below.

Classroom Inventory :

Room Number	Capacity	Installed Equipment effective Fall '04	Gen'l Purpose
2.108	127	NS standard	Yes
2.110	133	NS standard	Yes
2.114	60	NS standard	Yes
2.116	45	PHR standard	~75%
2.208	20	PHR standard*	No
2.214	20	Data projector only	No
3.106	136	Full tech. classroom, not NS standard*	No
3.108	30	PHR standard (teaching lab)	No
3.110	30	PHR standard (multipurpose lab/classrm)	No
3.114A	10	PHR standard	No
3.114B	10	PHR standard	No
3.114C	6	Plasma screen only	No
3.114D	10	PHR standard	No
4.114	52	PHR standard*	No

*equipped for two-way videoconference

Networking and Associated Electronics

As discussed above, wireless Ethernet of the 802.11b standard was originally provided throughout the old and new Pharmacy buildings. This system was upgraded to 802.11g standard during 2005.

Total number of Ethernet ports maintained by the College -----	932
Number of static and dynamic IP addresses -----	542
Number of 100baseT switched ports-----	839

The number of ports will be expanded during 2006 as the 3.116 computer lab's seating capacity is expanded. This project is described in greater detail below.

Departmental Servers

The College operates four servers for primarily administrative uses:

- Mac Mini, OS X
FileMaker Pro Server
- Mac Mini, OS X
FileMaker Pro Unlimited - Instant Publishing.
- Mac Mini, OS X
FileMaker Pro Unlimited - Dedicated Publishing,
- Mac Mini, OS X
Sassafras Keyserver, Now-Up-To-Date

In addition, two video servers and a large RAID array are used to publish streaming video to our audiovisual library and feed the video caches installed in our San Antonio and El Paso sites:

- Mac Xserve, OS X Server
QuickTime/MPEG4 Streaming Server, Apache Web server
- Mac Xserve, OS X Server
Netinfo/WINS Server, Retrospect backup server using Xserve RAID

Finally, three servers are used for file storage and student lab management:

- Mac Xserve, OS X Server
LRC Fileserver, AFP/ FTP fileserver
- Dell PowerEdge 2400, Windows 2000 Server
Labman and Application server
- Dell PowerEdge 2650, Windows 2003 Server
Ghost, RevrDist, and file server

Portable Projectors and Notebook Computers

Although the College's has installed instructional technology in every dedicated classroom, we still maintain a complement of portable equipment for checkout by faculty and students for use in classroom spaces elsewhere not yet equipped with installed equipment.

We continue to provide laptops to students, faculty, and guests giving presentations. The provision of wireless Ethernet in the Pharmacy buildings has resulted in greater flexibility and is a boon for presenters using the internet, a growing trend. Recently, ITS Networking made it possible for departments to purchase or request at no charge additional PNA (public network) bandwidth for projects. The College has applied for and received an allocation for our work-study students who routinely log in under their EID for guest lecturers' use. Our student workers' need to log in and use the PNA should not, and does not, have an adverse effect on their student bandwidth quotas.

Current and Proposed Funding Sources

The LRC's funding is chiefly derived from two student fee income streams. One is the College's Instructional Technology Fee. At present, each student enrolled in the College pays this fee. Nearly 100% of the income from this fee is used to fund LRC personnel.

The second main source of income is ITAC funds. At present, ITAC funds virtually all non-human expenditures for IT: computers, video equipment for the College's distance education programs and local use, classroom audiovisual equipment, and so on.

The LRC also receives funding from the Dean's Office for some administrative salaries.

Best Practices

The College of Pharmacy continues to be among campus leaders in the utilization of streaming video. Because the College has an extensive distance education program involving three UT satellite locations, San Antonio, El Paso, and Pan American, whose coursework is chiefly taught using videoconferencing, this was a natural outgrowth of a long-standing practice of recording those video-taught lectures and making them available, at the faculty member's discretion, to students for their review.

The College currently captures, encodes, and offers as streaming video fifteen to twenty hours per week of course material. We are collaborating with the College of Communication on an ITAC request that seeks to increase the ability to record lectures in the classroom by building an automated system to allow teachers to record their lectures to centralized servers. This project is described below.

Of note is a recent new wrinkle in video streaming, podcasting. While the Thanksgiving 2005 Newsweek featured a story on this “revolutionary” method of delivering classwork, the College of Pharmacy began delivering near-podcasts of lecture material earlier in the Fall 2005 semester. The term ‘near-podcast’ deserves a definition.

True podcasting is s subscription service. Users subscribe to audio material that is delivered to iTunes or other audio management software, then transferred if desired to an iPod or other device. While this term has been applied to the simple downloading of audio files for end use similar to podcasting, it is not quite in accord with the accepted definition of this jargon. Thus, the downloading of audio files for student use by the College is called near-podcasting. We began experimentation with this activity in Fall 2005, upon request by a faculty member. The faculty member had been persistently asked for this service by one of her class members who has a long commute to school. And this is a perfect utilization of class-related audio files, be they podcasts, near-podcasts, and so on.

Use of Previous Academic Year Allocations

Programs and Infrastructure

Last year's Vision Plan requests in summary with outcomes for each:

1. Continue life-cycle replacement of lab PCs----- \$20,000
Funds earmarked for this purpose were set aside for this year's lab remodel. All computing hardware will be replaced in addition to the furniture and carpet.

2. Remodel/upgrade PHR 4.114 ----- \$30,000
This project was completed. This room now sets a new, higher standard for medium-sized videoconferencing spaces. Parkervision cameras with SDI (Serial Digital Interface) were purchased, enabling them to be controlled by an existing joystick controller in the control room. Furthermore, the cameras' SDI output can be utilized when number seven below is realized, enabling greater flexibility and resource-sharing between the rooms.

Sonex sculpted sound-absorbing tiles were used for the ceiling. Architectural sound-absorbing panels (with color-coordinated fabric) were installed on the side walls. The carpet was replaced. The lighting fixtures were not only replaced but were optimized for videoconferencing. Finally, two 45" Sharp Aquos LCD screens were added to the room making possible the presentation of two sources to students and a clear view of the far site or computer output to the instructor.

3. Integrate Classroom Performance System (CPS) ----- \$20,000
This project was deferred, although considerable piloting of the use of this equipment in Pharmacy's General Purpose classrooms was conducted at the request of two non-Pharmacy professors. Note that the College is waiting for a new RF (radio-frequency) standard for the campus to be established. The CPS industry is at present in a state of flux as systems switch between the limited IR (infrared) standard to the better RF standard, but a resulting shakedown has occurred. Once the campus has decided upon a new standard, Pharmacy will equip some of its rooms with permanent equipment.

4. Classroom technology maintenance/upgrade (Departmental) ----- \$20,000
Funds have been used to purchase new PCs, Macs, and switcher controllers. This equipment is expected to be installed during the December '05-January '06 intersession. Systems Analyst Oliver Gomez has designed a new interface with enhanced usability. This new design was made possible by a product improvement/advance by the manufacturer Extron.

5. New RAID for streaming video ----- \$10,500
Various RAID equipment has been purchased in the past year in order to replace aging equipment and provide ample storage for, for example, backup services. The streaming video RAID has enough storage space to enable easy archiving and retrieval of past semesters' streams. Rapid access to this material can be very handy when, for example, a

professor falls ill. If last semester's lecture on the topic can be quickly retrieved and served or projected for the class, a crisis is averted.

6. Classroom technology maintenance/upgrade (General Purpose)----- \$20,000
The Liberal Arts classroom technology team makes daily checks of the General Purpose classrooms in Pharmacy, according to a contractual relationship. Funds were also used to accommodate changes made necessary by the remodeling of these three rooms. The architectural remodeling itself was funded by the Provost's office.

7. Convert PHR 3.106 video to SDI (digital) video standard----- \$40,000
This remains as a long-term goal. This project is inevitable as the current state-of-the-art for video transport works its way down from the broadcast arena to education; in the mean time, the current system can do the job with some patching and work-arounds. This project will continue to be deferred until adequate funds have accumulated, the video plant deteriorates significantly, or the new technology becomes more affordable.

Total requested: \$160.500

One-time Projects

No funds were received for one-time projects.

Needs and Proposed Use of Funds

Programs

1. Continue life-cycle replacement of lab PCs; remodel 3.116----- \$80,000

While the actual term or period of the life-cycle replacement is being reconsidered, as has been discussed earlier, this item remains as a request and will continue to do so. While the need for ever-increasing amounts of computing power seems to be abating for the average desktop user, the evolution in storage technologies, for example, may cause a need for periodic replacement just as increased power has in the past. A good example of this is the flash drive. Not that long ago, computers had USB receptacles placed near the other input/output jacks, in the rear. Now, there is a need for easily reached USB receptacles to accommodate flash drives. Some day we may need to place iPod cradles with our laboratory computers as well.

Another issue (in this case better described as an opportunity), however, presented itself early in the academic year. The furniture in PHR 3.116, the College's main computer lab, was made for 17" CRT monitors, and as such it is far deeper than visual or hardware needs require. During the summer of 2006 the lab will be refurbished with new carpet and, more importantly, new furniture. This furniture will be custom made by the UT Cabinet Shop in a new, shallower configuration that will allow the seating capacity of the lab to increase by about a third.

2. Remodel/upgrade PHR 4.114 ----- \$30,000

The previous request for this item was for \$50,000. This request is to offset the shortfall of \$30,000 between the amount requested and the actual cost of architectural updates. Note that this amount covers only architectural work and does not cover the equipment that has been purchased, including two digital robotic cameras.

3. Integrate Classroom Performance System (CPS) ----- \$20,000

Several Pharmacy faculty members have indicated a high level of interest in CPS. With the advent of the RF-based system this technology has matured. This request is to cover the College's share of the campus license being negotiated by Natural Sciences and to pay for hardware integration into Pharmacy classrooms once a standard has been established for the campus. Note that thanks to the Division for Instructional Innovation and Achievement and its support for CPS activities, two classes used newest-generation RF (radio frequency) equipment this semester in Pharmacy classrooms. The equipment was donated by the vendor.

4. Classroom technology maintenance/upgrade (Departmental) ----- \$20,000

Having three videoconferencing rooms plus technology in virtually every instructional space results in a significant maintenance effort.

5. Equip two classrooms for self-service video recording (Gen'l Purpose)- \$36,500

This is a multi-College ITAC request being led by the College of Communication. Readers may find detailed technical information in Communication's submission on behalf of all participants, which will follow the deadline for the Vision Plans.

This is a project that, a few years ago, might have been labeled 'bleeding edge.' However, the technology is available now in many venues here on campus (for example, every classroom with standard technology such as those created and maintained by Liberal Arts, Natural Sciences, Engineering, and Business). Most importantly, the demand is here. Any reader of *The Chronicle of Higher Education*, or even *Newsweek*, is aware that Podcasting is being hailed as a revolution in education. What is revolutionary is that, thanks to the power of music in young people's lives coupled with a device with such ubiquity that it becomes a standard, there is a mechanism for delivering content and a demand for such content from end users. This demand is so strong that it may indeed change the educational landscape in a way not seen since the advent of the internet (the use of which continues to evolve).

Any larger technology classroom already has all of the tools necessary to create an audio podcast on-site. There is a wireless lavalier microphone to provide the lecturer's voice; a Mac or PC computer quite capable of digitizing and saving the lecture audio; and a network connection available for the transmission, and subsequent distribution, of a podcast. The tasks that remain to enable self-serve audio podcasting chiefly consist of some minor signal routing within the console and the authoring of scripts that can initiate and complete all of the necessary steps required. And it is time for providers of campus instructional technology to turn their attention to this opportunity. (It is also time for those who advise us of the legal issues surrounding this activity to take a stand, but that is another issue.)

Video podcasting (the latest iPod, and many of its competitors, offer video as well as audio) is somewhat more daunting in its execution. While practically all teachers talk, not all use visual aids. Some use the chalkboard. Others use a document camera. Still others, an increasing number, prepare PowerPoint or similar lecture slides that can be delivered in a number of ways. A few, such as music professors or health care instructors, incorporate audio into their lectures. Most do not use audio extensively. Whether to provide a talking head, a graphical screen either within or outside the video stream, or other permutations of video classroom delivery will have to be considered.

This variety is going to defeat a 'one size fits all' solution. But new technology that is universally applicable is extremely rare. What is needed at this time is experimentation and early implementation. This request is a call for funds to support exactly that kind of pilot.

6. Classroom technology maintenance/upgrade (General Purpose)----- \$20,000
 The College has continued to maintain and enhance its technology classrooms. The three General Purpose classrooms within the Pharmacy buildings are maintained on contract by Liberal Arts. They are heavily scheduled and burn a lot of projector lamps, wireless microphone batteries, and so on. Furthermore, they are aging and components such as wireless microphone systems are failing.

7. Convert PHR 3.106 video to SDI (digital) video standard----- \$40,000
 This remains as a long-term goal. This project is inevitable as the current state-of-the-art for video transport works its way down from the broadcast arena to education; in the mean time, the current system can do the job with some patching and work-arounds.

Infrastructure

8. Data network projects----- \$20,000
 While the College has invested recently in new gateway switches and other network upgrades, we wish to invest in a few gigabit pathways for critical high-bandwidth projects such as streaming video. Also, more ports will be required for the 3.116 lab remodel/expansion.

9. Purchase new codec for PHR 3.106-----\$15,000
 The College depends heavily on compressed videoconferencing to deliver its content to sites located on the campus of UT Health Science Center San Antonio, El Paso, and Pan American. The Office of Telecommunication Services has announced a migration from h.320 to h.323, that is, from dedicated fractional T1 circuits to web-style transmission. The College has delivered video and audio to and from the Network Operations Center for many years, using the codecs available at the NOC for the actual encoding/decoding of the signal. With the migration to h.323, local encoding will become essential for maximum flexibility. This request funds the purchase of a video codec for PHR 3.106. Note that PHR 4.114 and 2.208, the medium- and small-sized videoconferencing rooms, have their own installed codecs already.

Total requested: \$201,500

One-time Projects

The College of Pharmacy is participating in a proposal that will be submitted to ITAC as a multi-college project to create self-service video recording classrooms, #5 in the Programs list just above. ITAC members' consideration is greatly appreciated.