

FY 2008 Technology Fee Proposal

Submitting Organization:

Major Unit: **College of Arts & Sciences**
Department: **Chemistry**

Contact Person:

Don Harden
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1. Project Short Title

<i>5-8 Word Project Title</i>

Chemistry Learning Enhancement by Improving Access to Technology

2. Total Requested

Fiscal Year 2007

\$273,873

3. Executive Summary

Project Description (three or four sentences)

The main objective of this proposal is to fund new scientific instruments, computers and printers for Chem 4010/6010. Other areas addressed are improvements to the network infrastructure, adding workstations to classrooms and laboratories, and replacing obsolete computers and software.
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4. Project Description

The laboratory for Instrumental Methods I: Chromatography (Chem 4010/6010) currently has three high performance liquid chromatographs (HPLC) which are eight years old and interfaced with Windows 3.11-based 80486 computers. During a lab each HPLC is occupied by four students. The PCs are so old that students can only transfer their data via hard copy or floppy disk. The HPLCs can not be upgraded nor interfaced to new computers. We would like to purchase new instruments, computers and printers to replace obsolete instruments and provide additional seats. Most of this proposal focuses on meeting the needs of Chem 4010/6010. The remaining requests are for improving network connectivity, additional workstations for several courses, and replacing obsolete computers and software.

Instrumental Methods I: Chromatography (Chem 4010/6010)

- Six high performance liquid chromatographs (HPLC) for Instrumental Methods I: Chromatography (Chem 4010/6010) to be housed in 249 NSC. Three of these will replace obsolete instruments, and the other three will provide additional laboratory seats.

- Eight computers for 249 NSC. Six computers will be interfaced with the new HPLCs, while the other two computers will be used for off-line data processing and as general student workstations.
- Two Hewlett Packard LaserJet P3005x printers for 249 NSC to serve the new HPLCs and computers.

Improving Network Connectivity

We would like to extend CATCHAT to our teaching laboratories so that students may use their laptops in these areas. To this end we will request CATCHAT coverage in 234, 238, 240, 246, 249 and 418 NSC, 513 SA, and 576, 578, 697 and 698 Kell Hall. We would also like to provide network ports to our teaching laboratories so that each networked device has a dedicated port. To this end we request network ports in 234, 238 and 240 NSC, and 576 and 698 Kell Hall.

Additional Workstations

- Six new computers in 578 NSC, which is used as both a classroom and computer lab for many Chemistry courses.
- Three new computers for Chem1212 in 234 and 236 NSC
- Two UART FT-IR samplers for Organic Chemistry Laboratory I and II (Chem 3100 and Chem 3110)

Replacing Obsolete Computers and Software

- Two computers to replace now obsolete computers purchased with FY 2002 Technology Fee award 2.1.7.
 - One computer in 234 NSC for General Chemistry I (Chem 1211).
 - One computer in 238 NSC for General Chemistry I (Chem 1211).
 - Six computers to replace now obsolete computers purchased with FY 2004 Technology Fee award 2.1.1.
 - One computer in 218 NSC, a lecture hall used for many Chemistry, Biology, and Physics courses.
 - Five computers in 513 SA for Computational Chemistry (Chem 6792).
 - Upgrade HyperChem software purchased with FY 2004 Technology Fee award 2.1.1 for Chem 6792.
5. Record the review numbers assigned by IS&T and Facilities. Their assessments must be included in Sections 16 and 17.

IS&T: IST08-106
Facilities: 14708-07

6. Relevance to Regents Guidelines

This proposal specifically meets Regents' Guidelines “[1] Technology fee revenues should be used primarily for the direct benefit of students to assist them in meeting the educational objectives of their academic programs...” by providing computerized analytical instruments for Chem3100, Chem 3110, and Chem 4010/6010, and “[2] Technology fee revenues should be used to assure that there are sufficient campus licenses for primary productivity tools ... for discipline specific software...” by the purchase of HyperChem software licenses for Chem 6792 and “[3] Technology fee revenues should be used for hardware and Network related expenditures that include support of general purpose or special purpose laboratories used by students for body productivity and more discipline related activities...” by funding computers, printers, instruments and network connections mentioned above for the stated purposes.

7. Relevance to Strategic Plan(s)

Our pedagogical mission is to offer a challenging and productive environment for all of our students so that they may make full use of our academic programs in pursuit of their educational goals. This includes increasing course capacity as enrollment increases so that Chemistry maintains high retention and pass rates. Course capacity is especially important to the College in core areas where the majority of students are from other majors. Chemistry is a technological discipline. To accomplish the stated mission we need to provide modern computer-controlled instrumentation and data analysis platforms so that our students will learn to use up-to-date technology. Proficiency with these tools will make our students more valuable once they leave GSU and join the workforce.

8. Impact on Students Served

Since 2000 the number of chemistry majors has doubled from 146 to 289 majors enrolled in the Fall 2006 semester. Approximately 850 freshman students take Chem1212 each year. We plan to replace the two obsolete PCs in this lab with five new computers. All Chemistry majors, all Biology PredMed majors and all Psychology PreMed majors, approximately 650 students in all, take Chem 3100 and 3110 each year. The UART upgrades to the FT-IR spectrometers will greatly increase the efficiency with which these students can complete their laboratory course work.

576 Kell Hall is used as both a classroom and computer lab. It currently houses seven computers and one color laser printer. Doubling the workstations in this room will serve the students who take General Chemistry I (Chem 1211), Survey of Chemistry I and II (Chem 1151 and 1152), General Chemistry II (Chem 1212),

Fundamentals of Chemical Analysis (Chem 4000/6000), and Molecular Modeling Methods (Chem 4450/6450) which is approximately 2200 students a year.

The HPLC instruments, computers and printers for Chem 4010/6010, and replacement of obsolete computers and software for Chem 6792 will provide modern learning tools for the upper-level undergraduate and graduate students from Biology, Chemistry, and Physics and Astronomy who take these courses annually.

9. Justification of Funding Requirements for Fiscal Year 2008

Provide a specific description of the funding requirements for FY 2008 in the Microsoft Excel spreadsheet below. You must use the same terminology as in the Project Description (page 2, #4) to allow each itemized line to be traced back to the items and functionality appearing in the Project Description. Failure to do so will negatively affect consideration of your proposal. Itemize and total the following categories of expense. If necessary, add lines to the table below corresponding to accounting objects of expense. **Please note that any equipment items less than \$4,999 should be categorized as "supplies."**

Object of Expense	Itemized Descriptions	Quantity	Per unit price	Extended Total
Supplies (Note: PCs under \$5,000 go here. Also, use standard dollar amounts and replacement thresholds from sections 11/12, or provide explanation in sections 11/12.)	Windows/Intel processors workstation, including monitor	25	\$1,222.00	\$32,548.00
	Hp/Compaq LaserJet P3005x printer	2	\$999.00	
	Item 3			
	Item 4			
	Item 5			
	Item 6			
	Item 7			
Equipment	Shimadzu LC-2010 HPLC System	6	\$27,500.00	\$180,200.00
	Perkin-Elmer UART FT-IR Sampler	2	7600	
Software (Note: Include Vendor and Product Name.)	HyperCube HyperChem 8.0 upgrade	6	\$500.00	\$3,000.00
	Item 2			
	Item 3, etc			
Maintenance or Contractual Services	Item 1			\$0.00
	Item 2, etc			
Board of Regents Guidelines state "In almost no cases should technology fee revenues be used for ... space renovation, or other items or activities that do not have a direct and immediate impact upon students instructional objectives." (See Attachment 1, #8)				
Construction Services (Requires review of Planning & Facilities)	Modifications to Classroom Rm. #576, Kell Hall	1	\$34,125.00	\$34,125.00
	Item 2			
	Item 3, etc			
Network Connections and Infrastructure Costs (Requires review of UCCS)	Switches	3	\$6,000.00	\$24,000.00
	Access Points	5	\$1,200.00	
	Item 3			
	Item 4, etc			
Physical Security (Note: Costs normally should not exceed 2.5% of Total Requested.)	Item 1			\$0.00
	Item 2			
	Item 3			
	Item 4, etc			
Other Expenses (explain)	Item 1			\$0.00
	Item 2, etc			
Board of Regents Guidelines state "Technology fee revenues may be used - with caution - for new staffing that is either temporary or ongoing." (See Attachment 1, #6)				
Staff Salaries	Item 1			\$0.00
	Item 2, etc			
Fringe Benefits	Item 1			\$0.00
	Item 2, etc			
		Hours/wk	Hourly Rate	
Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
Graduate Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
TOTAL				\$273,873.00

10. Consequences of Partial Funding

Only 75% funded: This project would still be viable at a 75% funding level by not purchasing the additional workstations for 576 Kell Hall there by avoiding the cost of modifying that classroom We would also reduce the number of HPLC instruments to five.

Object of Expense	Itemized Descriptions	Quantity	Per unit price	Extended Total
Supplies (Note: PCs under \$5,000 go here. Also, use standard dollar amounts and replacement thresholds from sections 11/12, or provide explanation in sections 11/12.)	Windows/Intel processors workstation, including monitor	19	\$1,222.00	\$25,216.00
	Hp/Compaq LaserJet P3005x printer	2	\$999.00	
	Item 3			
	Item 4			
	Item 5			
	Item 6			
	Item 7			
Equipment	Shimadzu LC-2010 HPLC System	5	\$27,500.00	\$152,700.00
	Perkin-Elmer UART FT-IR Sampler	2	7600	
Software (Note: Include Vendor and Product Name.)	HyperCube HyperChem 8.0 upgrade	6	\$500.00	\$3,000.00
	Item 2			
	Item 3, etc			
Maintenance or Contractual Services	Item 1			\$0.00
	Item 2, etc			
Board of Regents Guidelines state "In almost no cases should technology fee revenues be used for ... space renovation, or other items or activities that do not have a direct and immediate impact upon students instructional objectives." (See Attachment 1, #8)				
Construction Services (Requires review of Planning & Facilities)	Modifications to Classroom Rm. #576, Kell Hall	0	\$34,125.00	\$0.00
	Item 2			
	Item 3, etc			
Network Connections and Infrastructure Costs (Requires review of UCCS)	Switches	3	\$6,000.00	\$24,000.00
	Access Points	5	\$1,200.00	
	Item 3			
	Item 4, etc			
Physical Security (Note: Costs normally should not exceed 2.5% of Total Requested.)	Item 1			\$0.00
	Item 2			
	Item 3			
	Item 4, etc			
Other Expenses (explain)	Item 1			\$0.00
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	Item 2, etc			
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Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
Graduate Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
TOTAL				\$204,916.00

Only 50% funded: The major objective of this project, to fund new instruments for Chem 4010/6010, could be met at the 50% funding level. We would reduce the number of HPLC instruments and associated computers to four, and only replace obsolete computers and software. The UART FT-IR samplers and network upgrades would not be funded.

Object of Expense	Itemized Descriptions	Quantity	Per unit price	Extended Total
Supplies (Note: PCs under \$5,000 go here. Also, use standard dollar amounts and replacement thresholds from sections 11/12, or provide explanation in sections 11/12.)	Windows/Intel processors workstation, including monitor	18	\$1,222.00	\$23,994.00
	Hp/Compaq LaserJet P3005x printer	2	\$999.00	
	Item 3			
	Item 4			
	Item 5			
	Item 6			
	Item 7			
Equipment	Shimadzu LC-2010 HPLC System	4	\$27,500.00	\$110,000.00
	Perkin-Elmer UART FT-IR Sampler	0	7600	
Software (Note: Include Vendor and Product Name.)	HyperCube HyperChem 8.0 upgrade	6	\$500.00	\$3,000.00
	Item 2			
	Item 3, etc			
Maintenance or Contractual Services	Item 1			\$0.00
	Item 2, etc			
Board of Regents Guidelines state "In almost no cases should technology fee revenues be used for ... space renovation, or other items or activities that do not have a direct and immediate impact upon students instructional objectives." (See Attachment 1, #8)				
Construction Services (Requires review of Planning & Facilities)	Modifications to Classroom Rm. #576, Kell Hall	0	\$34,125.00	\$0.00
	Item 2			
	Item 3, etc			
Network Connections and Infrastructure Costs (Requires review of UCCS)	Switches	0	\$6,000.00	\$0.00
	Access Points	0	\$1,200.00	
	Item 3			
	Item 4, etc			
Physical Security (Note: Costs normally should not exceed 2.5% of Total Requested.)	Item 1			\$0.00
	Item 2			
	Item 3			
	Item 4, etc			
Other Expenses (explain)	Item 1			\$0.00
	Item 2, etc			
Board of Regents Guidelines state "Technology fee revenues may be used - with caution - for new staffing that is either temporary or ongoing." (See Attachment 1, #6)				
Staff Salaries	Item 1			\$0.00
	Item 2, etc			
Fringe Benefits	Item 1			\$0.00
	Item 2, etc			
		Hours/wk	Hourly Rate	
Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
Graduate Student Assistant Salaries	Item 1			\$0.00
	Item 2, etc			
TOTAL				\$136,994.00

11. Standard Dollar Amounts

All requested computers are budgeted at the standard dollar amount of \$1222 for Windows/Intel processor workstations.

12. Standard Replacement Thresholds

The eight computers to be replaced have less than the University minimum performance criteria.

13. Prerequisite, Non-Technology Fee Funding

This proposal is not dependent on any non-Technology Fee funding.

14. Matching Funds

This proposal does not have any matching funds.

15. Staffing and Other Support Availability

All computing facilities in the Chemistry Department, including those proposed here, are administered by Dr. Don Harden, the Departmental Technology Coordinator for Chemistry. His salary is paid for by the Chemistry Department. Dr. Dave Hamilton is in charge of and maintains all laboratory instruments for the Chemistry Department including those that are proposed here. His salary is also paid for by the Chemistry Department

16. Space Availability and Impact on Facilities

CBSAC and Planning & Facilities Assessment of Space Availability and Impact on Facilities (this information is also transmitted to techfee@gsu.edu):

Modifications to Classroom Rm. #576, Kell Hall, remove two sets of existing built-in cabinets and replace them with built-in computer benches. Electrical and data/communication capabilities are to be expanded to support an additional ten computers and one printer. Building HVAC capabilities are to be modified to support the additional heat loads generated by the new equipment. The existing HVAC and electrical systems in Kell Hall are operating at their maximum capacities.

Estimated Project Budget:

Estimated Design, Specifications, and Construction Costs: \$34,125.00

17. Impact on Computing/Networking/Information Security Infrastructure

IS&T Assessment of Network/Computing/Information Security Infrastructure:

Information Security Review (Tammy Clark):

Impact: Yes

Assessment: Ensure that AV/ISS Proventia desktop software is installed on all computers—contact security@gsu.edu for instructions.

Wireless and Network Ports Review (Mark Roberson):

Impact: Yes/

Assessment: Major impact expected. Proposal should include estimated (3) switches for \$6000..And \$1200 per access point to provide CatChat service to identified locations.

Server Connections (Charles Hollingsworth, Tammy Clark, Keith Campbell):

Impact: (No-CWH) , No impact – KEC

Assessment:

External Connections (Charles Hollingsworth):

Impact: (No-CWH)

Assessment:

DVR Installations (Mark Roberson, Tammy Clark, Charles Hollingsworth):

Impact: (No-CWH), (N/A-MR)

Assessment:

Lab and Classroom Configurations (Joe Amador):

Impact: Yes/No NO

Assessment:

18. Physical Security Needs

The Chemistry Department will provide physical security for the proposed equipment.

19. Post-Project Assessment Criteria

- Summer 2007: order instruments, computers, printers, and software.
- Summer 2007: request network connections from IS&T and modifications to classroom 576 Kell Hall form Facilities.

- Late Summer 2007 and Fall 2007: build hard disk images for the HPLC, 576 Kell Hall, 234 and 238 NSC, and Chem 6792 computers.
- Fall: 2007: roll out instruments, computers and printers to the various teaching labs and classrooms.

All work should be completed before the start of the Spring 2008 semester. The major outcome of this proposal will be the ability to provide modern and even state-of-the-art laboratory equipment for Chem 4010/6010 and improve the computing infrastructure for students taking Chemistry courses.

20. Review and Acknowledgements

Not Applicable.

GEORGIA STATE UNIVERSITY
Student Technology Fee FY 2008
Itemization of Equipment to be Replaced
Due to Obsolescence or Inadequacy

Unit: College of Arts and Sciences, Department of Chemistry

Proposal Submitter: Don Harden

Proposal/Award Title: Chemistry Learning Enhancement by Improving Access to Technology

If this proposal includes a request to replace old equipment with newer equipment due to obsolescence or inadequate performance, please itemize the specific machines or software to be replaced.

Station Number	GSU ID	Serial No.	Current Room Location	Make	Model	CPU	Mhz	Manu. Date
Lecture	00511914	57XDN21	218 NSC	Dell	Optiplex GX 260	Pentium	1400	Jul-03
Compchem 01	00513251	GSYZ031	513 SA	Dell	Optiplex GX 260	Pentium	1400	Jul-03
Compchem 02	00513255	5TYZ031	513 SA	Dell	Optiplex GX 260	Pentium	1400	Jul-03
Compchem 05	00513256	7TYZ031	513 SA	Dell	Optiplex GX 260	Pentium	1400	Jul-03
Compchem 04	00513252	J5YZ031	513 SA	Dell	Optiplex GX 260	Pentium	1400	Jul-03
Compchem 03	00513246	6SYZ031	513 SA	Dell	Optiplex GX 260	Pentium	1400	Jul-03
234	00505843	6TWYX01	234 NSC	Dell	Optiplex GX 150	Pentium	1000	Aug-01
238	00505837	8QWYX01	238 NSC	Dell	Optiplex GX 150	Pentium	1000	Aug-01