✓ new PC quote attached

Student Technology
Fiscal Year 2006-07
Grant Proposals

Delivered to IS: 11/1/06 Date _____ Jennifer Long Martin Signature

Dr. Jim McCrory: Approved Denied
Comment: We prefer Dells with Intel chip – XP Professional, not XP home. [redacted] what about network connection for PC?
Signature: _____ Date: _____

Tim Chadbourne: (Approved) Denied
Comment: _____
Signature: TC Date: 11/2/06

Gary Gatch: Approved (Denied)
Comment: XP Home cannot be added to the domain as is required by the NISA security policy
Signature: _____ Date: 11/7/06

Dale Martin: (Approved) Denied
Comment: _____
Signature: _____ Date: _____

Tyron/Diana: (Approved) Denied
Comment: _____
Signature: _____ Date: 11/6/06

Student Technology Fee
Grant Proposal Request Form
Fiscal Year 2006-07
Northwestern State University of Louisiana

FF

2007.007

Gillian E. A. Rudd Walter Flomer

Prepared by: _ Tye Botting _____ For: Fall 2006

Department/Unit: Chem. & Physics College: Sci. & Tech. Campus: NSU

Which NSTEP Goals/Objectives does this project meet: Univ. Goal 1 and NSTEP objectives 1, 2, 7 and 8

Requested equipment will be located/installed/housed? Building Fournet Hall Room Chem. labs

Are department property policies and procedures in place for requested equipment? Yes

Which individual will be responsible for property control of the requested equipment?

Signature: _____ Date: 26th Oct '06

Grant Proposal Requested Amount: $ $33,824 Budget Attached (circle one): YES/NO

Grant delivered to Student Technology located in Watson Library, Room 113. Date 10/31/06 1:47 pm

This grant proposal must include all specifications, description, model number, quotation, cost, state contract number, and vendor for each item. Proposal will be returned if information is not included in full.

1. Describe target audience. Please refer to attached sheets
2. Describe project/initiative for which you are requesting funds.
3. State measurable objectives that will be used to determine the impact/effectiveness of the project.

4. Indicate how each project objective will be evaluated.
5. If funded, which NSTEP http://www.nsula.edu/nstep/NSTEP.pdf objective(s) will this funding of this project advance. How will funding of the project advance the University and College/unit technology plan?
6. Provide a justification for funding of this project. Estimate the number of student that will be served per academic year and in what ways. Please indicate also any unique needs of the traget group.
7. List those individuals who will be responsible for the implementation of the project/initiative and indicate their demonstrated abilities to accomplish the objectives of the project.
8. Describe any personnel (technical or otherwise) required to support the project/initiative.
9. Provide a schedule for implementation and evaluation.
10. Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five years.

11. Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through a Student Technology Fee. If you are requesting equipment that will be either/or checkout to students or moved within the department, you must provide a checkout/loan policy.

Attach two (2) letters of support for the project from the following individuals: the requesting department's Dean, the appropriate Vice President (for non-academic units), or the SGA President from the requesting campus (for student requests).

Student Technology Fee Grant Proposal Checklist:

_____ Is all information requested provided (items 1 – 11)?
_____ Is a detailed budget attached?
_____ Is all specifications, description, model number, quotation, cost, state contract number, and vendor provided for each item?
_____ Are your two (2) letters of support attached?
_____ If equipment is to be checked-out/loaned, is your policy attached?

1. **Describe target audience**

All Louisiana Scholars' College and Northwestern students who take the following laboratories sessions: CHEM1091 (pre-nursing); CHEM1031/CHEM1041 (general chemistry); CHEM3011 (organic); CHEM2111 (quantitative analysis); CHEM2141 (inorganic) and CHEM4041 (biochemistry).

2. **Describe project/initiative for which you are requesting funds**

This project proposes to improve all aspects of the chemistry laboratory (lab) experience for both our students and that of the faculty by obtaining named items:

- Purchase of a Fourier Transform Infrared Spectrometer (FT-IR) to update our dated instrumentation and to include an accompanying computer.
- Purchase of twelve ultra-rugged and highly precise pH probes and meters and the purchase of four drying ovens for moisture sensitive reactions in general, organic, inorganic chemistry and biochemistry.
- Purchase of twenty-four stopwatches and twenty-four compact multimeters to replace worn-out/missing equipment in our general chemistry laboratories.

The rational for this project encompasses the use of modern lab equipment to improve student technology and the student "feel good factor" because they will not be using broken/outdated equipment.

All of this project will replace outdated or non-functioning equipment.

3. **State measurable objectives that will be used to determine the impact/effectiveness of the project.**

(i)Objective 1: Enhancement of Student Instruction in Laboratory Course

FT-IR is an essential component of the organic, biochemistry, analytical and inorganic labs. The current Mattson FT-IR has unreliable optics and we need a reliable instrument so that we are able to function at a "basic" standard of teaching and research. The new instrument will enable our students to be more competent in a technological workforce by promoting their science and technology skills. Students will see relationships between instrumental analyses and medical tests. They will do detailed and meticulous preparation of samples for analysis and will learn how to gather and interpret data. An accompanying Dell computer is required as the spectrometers data workstation.

We currently have one functioning oven in all of chemistry and it appears to be at least fifty years old (?) with frayed wiring and unreliable temperature settings: students require a new oven in each of the analytical, general, biochemistry and organic labs. Admittedly, there are only a few reactions in organic chemistry when super clean, super dry apparatus might be needed e.g. the Grignard reaction, an extremely moisture-sensitive reaction that our students perform in organic II. However, our single oven probably won't hold out forever and from a safety

standpoint, it's not good to have students wandering around carrying hot glassware because the one working oven isn't in their lab!

The current pH meters are broken/not working properly or missing (likewise with the digital meters and stopwatches). New equipment will provide more time for quality student instruction and amplification of the student "feel-good" factor.

(ii) Objective 2: Augmentation of Student Abilities in Obtaining and Interpreting Data by Providing Experiences with Organic, Inorganic and Biochemical Compounds

-in the organic and biochemistry labs

Rudd (PI) already has established biochemistry and organic experiments for the use of FT-IR, pH meters and the use of an oven: new instrumentation will allow the students to obtain decent results that they can actually analyze. They will become proficient at collecting and handling data and performing repetitive tasks.

-in the general and pre-nursing labs

We are sorely lacking reliable pH meters, stopwatches and digital multimeters. The new "student-proof" pH meters are rugged enough that more experiments will be designed by Botting and Flomer (Co-PI's) and thus performed with their use in mind.

-in the analytical and inorganic labs

Students are severely limited in experimental design by the lack of functioning oven space and reliable pH meters. The new FT-IR will enable Flomer (Co-PI) to make the inorganic labs to be more instrumentation proficient and friendly.

4. Indicate how each project objective will be evaluated.

The goals and objectives of any educational program must include cognitive and attitudinal assessments. We will assess improvements in cognitive skills with pre-testing and post-testing, using tests that we will develop. We will use ACS exams as guidelines only (bearing in mind the strict rules governing ACS exams), to establish an appropriate level of testing. Attitudinal assessments will be conducted using a 5-point Likert scale. All pre-tests will be implemented in the general, organic, inorganic and biochemistry in January 2007 with post-testing scheduled for May 2007.

Furthermore, the effectiveness of this project will be determined by the student retention between general chemistry I and II, whereby the lab is a pre and/or co-requisite to the course.

5. **If funded, which NSTEP objective(s) will the funding of this project advance? How will funding of the project advance the University and College/unit technology plan?**

(i) University Goals

University Goal # 1, "*to attain accreditation for each eligible degree program by a Board of Regents' approved national accrediting agency*," and #5 "*to develop and implement a system of resource, commitment and allocation in order to increase excellence in academic and professional programs*," are both encompassed by this project. We are required by American Chemical Society (ACS) professional standards to maintain a reliable FT-IR instrument for labs as well as all other associated equipment which is required for the successful running of most labs (pH meters, stopwatches, digital multimeters and ovens). It will be shown that more fulfilled students who attain hands-on experience with modern instrumentation, will make for a better future work-force.

(ii) NSTEP objectives

Objectives #1, 2, 7 and 8 are encompassed by this project. i.e. #1 states "*to improve access to technology by students, faculty, and staff at NSU*"; #2 states "*to provide classrooms with updated technology and multimedia*"; # 7 states "*to establish processes that encourage technology initiatives by faculty, staff, and students*" and # 8 states "*to encourage innovation and research.*" All four objectives emphasize the importance of technology based research, whether a procedure requires a simple oven , stopwatch or digital voltmeter, all are required for the efficient functioning of our labs and without them, the quality of our students' learning environment is significantly diminished. Without a reliable FT-IR (with accompanying computer workstation) our students lack a basic learning tool that would otherwise enable them to investigate the functional groups present in molecules and likewise, and our faculty lack a basic research tool.

6. **Provide a justification of funding of this project. Estimate the number of students that will be served per academic year and in what ways. Please indicate also any unique needs of the target group.**

(i). Impact on Curriculum and Instruction

The students will receive a higher quality laboratory experience during their first year chemistry and they will utilize tools important for their education, which includes new pH probes and meters and the FT-IR to analyze solutions, obtain decent data and then interpret the data. These students will receive a lab experience not focusing on the short-term knowledge, but will develop an inquiry skill to propel them through their careers as a scientist.

Beyond the general chemistry, the project will continue to develop the students understanding for and appreciation of chemistry. These students will: be exposed to a more in-depth laboratory inquiry skill in inorganic chemistry with the alteration of their procedures to include more instrumentation; have a better understanding of the investigation tools for analysis using the FT-IR and obtain decent results from upper level biochemistry labs using the new pH probes and meters. All of these improvements will

help to build the students confidence in chemistry as well as their understanding of it as a career.

It is also hoped that our 2000 level practicum for chemistry teaching course (a supervised experience in teaching in the chemistry lab, which is recommended for secondary education chemistry majors) will be involved in educating all other students on the functioning and operation of the new FT-IR.

(ii). Impact on Quality of Students

We expect the new approach described in this proposal to significantly improve student understanding and retention of the course material. This in turn will help to improve student satisfaction, which will have the effect of encouraging more college students to pursue a career in mathematics, science and engineering. The introduction of modern technology aiding in the collection of data, should inspire all of our students. After all, what student, if given the choice, would decide to take their major in an outdated department?

(iii). Impact on Faculty Development

This project will offer faculty the basis on which to develop new labs and the opportunity to study projects in a more challenging manner with their students. Faculty will be teaching skills required for successful inquiry based problems, which our students will then learn and utilize. Enhancement of chemical pedagogy, will take the students from the mediocre experience of chemistry to a more in-depth understanding of the field. The same can be said for having functioning instrumentation that enables faculty to carry out research, obtain concluding results and present successful research.

7. **List those individuals who will be responsible for the implementation of the project/initiative and indicate their demonstrated abilities to accomplish the objectives of the project.**

PI Rudd, Assistant Professor of Chemistry, holds the Ph.D. in organic medicinal chemistry from the University of Warwick (England). She spent two years as a post-doctoral fellow for F. G. A. Stone at Baylor University, where she gained significant experience in $^{11}B\{^{1}H\}$ NMR, ^{11}B-^{1}H HETCOR and FT-IR. Since joining the NSU faculty (1998) she has taught upper level biochemistry, organic chemistry, and instrumental analysis, as well as lower level introduction to chemistry and biochemistry courses for pre-Nursing and other pre-Health students and general majors' chemistry.

Co-PI Botting holds the joint faculty position shared between Northwestern State University and NCPTT. In addition to serving as Assistant Professor of chemistry, his work at NCPTT currently involves comparative evaluation of stone consolidant treatments. He currently studies responses of treated and untreated stone samples to air pollution and artificial weathering and he quantifies the chemical and physical characteristics important in the preservation of cultural artifacts. In 1999, he was awarded a Ph.D. in nuclear chemistry from Texas A&M University. Tye came to NCPTT in

January of 2004 after post-doctoral work in Texas A&M University's nuclear engineering program.

Co-PI Flomer, Associate Professor of Chemistry, holds the PhD in inorganic chemistry from Clemson University and spent one year post-doctoral work at University of California in Irvine. He currently teaches inorganic, general and the pre-nursing chemistry.

8. **Describe any personnel (technical or otherwise) required to support the project/initiative.**

None required

9. **Provide a schedule for implementation and evaluation.**

We believe that our evaluation methods (see 4) will clearly indicate whether benchmark dates have been met and whether cognitive improvements have occurred. Attitudinal surveys will determine whether students "feel" more informed, more motivated, and more appreciative of for example FT-IR training experiences that reinforce the subject matter. As improved recruitment of quality students is an aspect of the proposal, numbers of incoming students, as well as their GPAs and ACT scores, will demonstrate whether this has been achieved. Finally, numbers of students enrolling in our entire lab based pre-professional programs, numbers that subsequently applied to the programs, and percent success rates will provide a complete picture of the project's impact on our curriculum

10. **Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five years.**

The FT-IR and accompanying computer all come with a one year warranty, to cover non-consumable parts and labor to correct defects in workmanship and/or materials when defects have not been caused by misuse or abuse. The Shimadzu FT-IR is built-to-last and the computer will be upgraded within five years. All other instrumentation (pH meters/probes, stopwatches, ovens and digital multimeters) have been chosen for their "student-proof" ruggedness – they are consumables, but with excellent care they should perform for several years.

11. **Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through a Student Technology Fee.**

    If you are requesting equipment that will be either/or checkout to students or moved within the department, you must provide a checkout/loan policy

(i) Property security

All materials obtained through this project will be protected under the Department of Chemistry & Physics removable property guidelines (and tagged with NSU bar code).

(ii) *Cost Effectiveness?* We estimate approx. x740 students per year requiring our labs (excluding any physics majors) and with a budget of $33,824 we consider $46 per student to be very cost effective.

(ii)Equipment Request:

Name	Supplier	Price	Quantity	Total
Description				
Compact Multimeter S47778 (*refer to appendix*)	Fisher	$14.90	24	**$357.60**
DC/AC voltage and DC current with resistance measurement. Complete with transistor and diode test function, full overload protection, a 9V transistor battery, meter and test leads. It's dimensions are: 5L x 2.88W x 1 in.H				
Stopwatches S43138 (*refer to appendix*)	Fisher	$6.45	24	**$154.80**
Waterproof plastic housing with time-out, cumulative split and continuous timing features.				
Fisher Isotemp* Premium Lab Ovens 13-247-725G (*refer to appendix*)	Fisher	$1850.78	4	**$7403.12**
A 2.5 cu. ft capacity oven with interior dimensions of 47 x 39.4 x 38.1 cm and exterior dimensions of 61 x 53.6 x 71.1 cm, using 120V, 60 Hz, 1300 W. This unit was chosen because it delivers a max. temperature of 275°C, making it ideal for glassware drying, stability testing, aging and curing studies and epoxy and plastic curing. It features a corrosion-resistant stainless steel interior, built in over-temperature safety and indicator light, easy-clean shelving and tough epoxy-polyester exterior.				
IQ150 pH/mV/Temperature System IQ-150-77 (*refer to appendix*)	IQ Scientific Instruments, Inc.	$599.00	12	**$7188.00**
Chosen because their pH systems use *rugged*, non-glass silicon chip sensors which overcome the frustrating problems experienced with delicate glass bulb sensors found in traditional pH electrodes. The probes *store dry, require no maintenance* and the sensors can be cleaned easily with a toothbrush and detergent. The stainless steel pH probe has an 8.3 mm diameter and is an excellent all purpose probe for general use in liquids and viscous samples. The ultra rugged pH meter is armored in a water-resistant rubber holster and is engineered to withstand a 10-foot drop into concrete. This IQ150 ISFET meter offers precision with ease of use. A less expensive model (IQ140-30 at $299) only comes with a general purpose conventional glass sensor pH probe and we desire this purchase to be as "student proof" as possible. The next model up (IQ240-66 at $795) uses optional 4.8 mm micro probe and Windows SmartLogger software which graphs data on a PC in real time: this would be great but superfluous at this time.				
Shimadzu FTIR-8400S with IRsolution software academic package (*refer to appendix*) and Computer	Shimadzu Dell	$17,490.00 $930.94	1 1	**$17,490.00** **$930.94**
Complete with analytical balance and educational transmission kit in the FTIR academic package				

All prices do not include tax or freight charges.
Information on the suppliers can be found in the appendix.

Total requested = $33,524.46 with estimated approx. $300 shipping = $33,824

Appendix

Suppliers

Dell Computers
Online or contact 1-800-915-3355

Shimadzu Scientific Instruments, Inc.
Corporate Office,
7102 Riverwood Drive
Columbia, MD 21046
Phone: 410-381-1227
Fax: 410-381-6781

IQ Scientific Instruments
2075-E Corte del Nogal,
Carlsbad, CA 92011
Phone: 1-800-276-0723
Fax: 760-930-0615

Fisher Scientific International,
1-800-766-7000

Print this page Close

Dell recommends Windows® XP Professional

Print Summary

Dimension C521

$379.00

Preliminary Ship Date: **10/31/2006**[1]

My Selections All Options

- **Dimension C521**

Date	10/26/2006 1:37:08 PM Central Standard Time
Catalog Number	25 Retail rc956904

Catalog Number / Description	Product Code	SKU	Id
Dimension C521: AMD Athlon™ 64 3200+	A32AE	[222-5759]	1
Operating System: Genuine Windows® XP Home Edition	WHXP	[310-8553][412-0688] [412-0911][420-4834] [420-4927][420-5477] [420-5769][463-2282]	11
Memory: 512MB Single Channel DDR2 SDRAM at 533MHz - 1DIMM	512M51	[311-6717]	3
Hard Drives: 80GB Serial ATA Hard Drive (7200RPM) w/DataBurst Cache™	80S	[341-4062]	8
CD or DVD Drive: 16x DVD+/-RW Drive	16DVDRW	[313-4659][420-5790] [420-6399]	16
Floppy Drive and Media Reader: No Floppy Drive Included	NFD	[313-4717]	10
Monitors: 17 inch E773 (16 inch viewable) Conventional CRT	E773	[320-5094]	5
Video Cards: NVIDIA GeForce 6150 LE Integrated Graphics GPU	IV	[320-4270]	6
Sound Cards: Integrated 7.1 Channel Audio	IS	[313-2758]	17
Speakers: No speakers (Speakers are required to hear audio from your system)	N	[313-2198]	18
Keyboard: Dell USB Keyboard	EK	[310-8025]	4
Mouse: Dell® 2-button USB mouse	SM	[310-7965]	12

Office Productivity Software (Pre-Installed): No productivity suite- Includes Microsoft Works 8. DOES NOT INCLUDE MS WORD	DWRK	[412-0912]	22
Security Software: McAfee Security Center w/VirusScan, Firewall and Privacy, 90-day trial	MCAFE90	[412-0850]	25
Digital Music: Music Jukebox by Yahoo! Music - Basic music software	MMBASE	[420-6367]	27
Digital Photography: Corel Snapfire Basic - Organize and Edit your photos	DPS	[412-0931]	28
Adobe Software: Adobe® Acrobat® Reader 7.0	AAREAD	[412-0914]	15
Internet Access Service: No ISP requested	NISP	[412-0148]	37
Modem: No Modem Requested	N	[313-3137]	14
Network Interface: Integrated 10/100 Ethernet	IN	[430-0441]	13
Limited Warranty, Services and Support Options: 1 Year Limited Warranty plus 1 Year NBD On-Site Service	U111OS	[950-9797][960-2800] [980-3260][985-1248]	29
Labels: Vista Capable Sticker	VCD	[310-8591]	750

Print

[1] The Preliminary Ship Date represents the estimated time it takes to process your order and custom build your computer based on approved credit card purchase. The Preliminary Ship Date is not intended to provide you with an actual estimated ship date. Your estimated ship date may vary based upon the payment method you choose and other factors. You will receive your Estimated Ship Date in your e-mail confirmation. Customers using E-Check as their method of payment should add 3 days to their Preliminary Ship Date.

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Systems Software & Peripherals Contact

E-Quotes

Dell recommends Windows® XP Professional

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Payment

SHIPPING PAYMENT VERIFY & SUBMIT ORDER

Select a Payment Method
The total cost for your order is **$930.94**. Please choose ONE of the following options to pay for your order. By submitting you order you indicate that you have read and accept Dell's Terms and Conditions of Sale.

Note: Changing your billing address could result in a new customer number being generated for your order. Please contact y representative.

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Pay with Net 30 Days credit terms

Credit/Debit Card

VISA

Pay with one credit/debit card online

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Dell recommends Windows® XP Professional

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Welcome, Gillian Rudd. (If you are not Gillian Rudd, click here)

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Please review the contents of your order for accuracy before placing your order
- Specific information about each item in your cart is available by selecting the "Detailed View" tab

Cart Items	Qty	Unit Price	Total
Dimension C521 ▸ System Details			$379.00 Remo
Dimension C521 AMD Athlon™ 64 3200+, Genuine Windows® XP Home Edition ▸ Adjust System	1 Update Total	$379.00	
Dimension C521 ▸ System Details			$379.00 Remo
Dimension C521 AMD Athlon™ 64 3200+, Genuine Windows® XP Home Edition ▸ Adjust System	1 Update Total	$379.00	

Coupon Entry

Enter coupon number

Apply Coupon

Note: Coupon savings are only applied to items you have added to your cart.

Sub-total	$758.00
Shipping & Handling	$100.00 Estimate & Handlir
Tax[1]	-- Tax

Total Price[2] $930.94

Checkout

Save as E-quote

Print Cart ▸ Continue Shopping

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[1] Applicable sales taxes are currently unavailable in the Dell Online Store for your order. The amount of sales tax applicable for the items y email or phone following receipt of your online order.

[2] For shipments of certain products to California, state environmental fee of up to $10 per item will be added at order invoice. For shipmen environmental fee will be applied to your invoice. Pricing, specifications, availability and terms of offers may change without notice and are with other discounts or promotional offers. Taxes, fees, shipping and handling and any applicable restocking charges are extra, vary, and a end-user customers and not for resale by customer. Dell cannot be responsible for pricing or other errors, omissions, or consequences of right to cancel orders arising from such errors. Refer to your invoice for final information regarding order detail, including tax & shipping an dollar for online display. Additional terms and conditions may apply. All sales are subject to Dell's Terms and Conditions of Sale located at agreement with Dell.

Picture is for illustrative purposes only. Price may increase or decrease depending on options selected.

SHIMADZU PRICE QUOTATIC

Shimadzu Scientific Instruments, Inc.
CORPORATE OFFICE
7102 Riverwood Drive
Columbia, MD 21046
Phone: (410) 381-1227
Wats: (800) 477-1227
FAX: (410) 381-6781

Shimadzu Scientific Instruments, Inc.
South Central Office
10801 Hammerly Boulevard
Suite 148
Houston, TX 77043
Phone: (800)739-1942
Fax: (713)467-1153

Terms: Net 30 days upon approval
Prices valid 30 days

Please Indicate This Number When Ordering: MM2006298

TO: Walter Flomer / Gillian Rudd
Northwest State University

Natchitoches, Louisiana 71497
Phone: 318-357-5224 / 318-357-5232
Fax:
Email: flomerw@nsula.edu
Email: rudd@nsula.edu

Date:	9/13/2006
Your Inquiry:	9/13/2006
Proposed Shipping Date:	30/45 Days A.R.O.
Ship Via:	Best Way
Salesperson:	Michael May
SalesPhone:	800-739-1942
F.O.B.	Destination
PPD & ADD:	X
PPD:	

Thank you for your interest in Shimadzu.

PLEASE SEE ATTACHED TERMS AND CONDITIONS

DISTRIBUTION:
_____ Customer
_____ Sales Engineer
_____ Regional Office
_____ Corporate Office

Item	Part #	Name and Description	Qty.	Unit Price	Total Net Price
1	220-93140-10	**FTIR Academic Package for the FTIR-8400S Fourier Transform Infrared Spectrometer with IRsolution Software** The high sensitivity FTIR features a dynamic auto-alignment system to optimize reproducibility, a temperature-stabilized DLATGS detector, 30 degree Michelson interferometer with a friction-less moving mirror drive, a high-energy long life ceramic globar source with 1.5 times the energy of conventional IR sources and a long lifetime He-Ne Laser. The sealed and desiccated optical compartment maximizes the instrument life and protects the moisture-sensitive KBr beam splitter. This package contains the Sadtler University Standards Database which consists of over 300 spectra to satisfy the academic need for a small convenient collection of infrared spectra of organic compounds relevant to college introductory courses on organic chemistry and the supplementary laboratory courses on experimental organic chemistry and qualitative organic analysis. Also included is the Shimadzu AX200 Analytical Balance and the Educational Transmission Kit from Pike Technologies. The Educational Transmission kit provides all the necessary accessories for solid, Interferometer: Michelson type with 30 degree Incident Angle, Dynamic Auto-Alignment, Sealed and Desiccated Optical bench. Beam Splitter: Germanium-Coated KBr. IR Source: Ceramic Globar. Detector: DLATGS; S/N: Above 20,000:1, WaveNumber Range, 7800cm-^{1}~350cm-^{1}, Resolution: 0.85 cm-^{1}; Mirror speed: 3 steps, 2.8mm/sec, 5mm/sec & 9mm/sec; WaveNumber Referencing: He-Ne laser, Dimensions: 622W x 584D x 250H mm. IRSolution Data Processing Functions: Spectral Search, Multipoint and Multiple Linear Regression Quantitation, Arithmetic calculation, peak pick, spectral subtraction, smoothing, baseline correction, data cut, normalize, purity check using Pearson's Correlation Coefficient (R), Kubelka-Munk & Kramers-Kroning Conversions, ATR correction, Fourier transform, derivatives, Absorbance/Transmittance toggle, Macro programming, peak area integration, peak-ratio calculation, Emission correction, deconvolution, JCAMP & ASCII conversion, logarithmic conversion, wavelength-wavenumber conversion, shift along X axis. SCSI I/F for PC is included. Includes: FTIR-8400, IRSolution Software, Manuals, Power cord, SCSI I/F with 2 m cable.□ Requires: Data Station Recommended PC specifications: Pentium 850 MHz CPU, 128MB RAM, Windows 2000 or XP, 1GB HDD, 4X+CD-ROM Drive, Color VGA Monitor.206-71000-99,220-91104-00, 206-72329-91; 220-92746-76; 220-96033-16; 220-92744-02	1	$17,490.00	$17,490.00
2	1Y Warranty	**ONE YEAR WARRANTY** ONE YEAR WARRANTY: To cover non-consumable parts and labor to correct defects in workmanship and/or materials when defects have not been caused by misuse or abuse.	1	$0.00	$0.00
3	INST & FAM	**Installation and Customer Familiarization** Installation and Customer Familiarization	1	$0.00	$0.00

Total List Price $17,490.00

Total Sales Price $17,490.00

AUTHORIZED SIGNATURE: _____

3 Key Design Features

If you talk about anything to a customer regarding FTIR it's a good idea to mention these three items that highlight the Shimadzu FTIRs:

Interferometer Design:

There is only ONE moving part in an FTIR – *the moving mirror of the interferometer.* The unique, patented Shimadzu design employs a friction-less electromagnetic moving mirror drive supported by two tough, durable polyimide sheets (a flexible joint support system). The moving mirror is responsible for the generation of the interference pattern that gives rise to the spectrum. This design has been in use for over 10 years and there are FTIRs that are still working with their original interferometer! *This moving mirror keeps on moving!*

Dynamic Automatic Alignment:

Since we are depending on exact movements of the moving mirror to generate our spectra, it comes as no surprise that we want to track the movement exactly and adjust the stationary mirror to keep it perfectly parallel with the surface of the moving mirror. This is done by the *dynamic alignment system* which operates at >10,000 Hz. *Why do we stick the word* ***automatic*** *in there?* Because the user doesn't ever have to think about it or do anything mechanical to adjust the interferometer – the FTIR & PC take care of it during EVERY scan!

Humidity Protection:

The optical components used for IR have to be IR transparent. Unfortunately, most of these materials are susceptible to moisture damage and must be protected. Shimadzu designed its' FTIRs to withstand the harsh environment of Southeast Asia and other Tropical and Sub-Tropical regions so you can bet that our instruments are protected from moisture! (Remember that in laboratories humidity is a function of such things as glassware washing and water baths – not just external humidity – so this can be a problem even in New Mexico and Arizona!) *How do we protect the moisture-sensitive KBr beamsplitter?*

- A high-tech proprietary anti-moisture coating is applied directly to the beamsplitters surface.
- The optical compartment is sealed and desiccated. The desiccant is a superior material – Calcium Oxide is encased in a barrier plastic that allows moisture in, where it reacts with the CaO, but will not allow it to be re-released back into the optical compartment. Every other FTIR desiccant allows the moisture to go back into the optical compartment when it is turned on and the source warms everything up! The only way around this is purging (very expensive and time-consuming to maintain.
- Instead of using a KBr exit window like everybody else, Shimadzu uses KRS-5. KRS-5 does not react with water, it is impervious to moisture and will NEVER fog like KBr (even coated KBr will eventually fog!)

These three design features highlight the following: Shimadzu FTIRs are built-to-last and they are as reliable as the most reliable UV-Vis instruments. The UV-Vis line has been one of Shimadzu's greatest strengths since they were first developed and introduced!

FTIR-8400S - Minimum Specifications for FTIR

The following are minimum specifications for the FTIR instrument:

- To ensure high stability and minimize instrument maintenance, instrument must incorporate a Dynamic Alignment System to ensure the stability of the interferometer by keeping the interference conditions continually optimized during measurement.

- To provide enduring precision and linearity free from wear between contacting surfaces, instrument must have a frictionless moving mirror, without the need for air bearings.

- For optimum energy throughput, instrument must incorporate a 30° Michelson Interferometer.

- To minimize baseline noise, instrument must incorporate a thermostatted DLATGS Detector, and provide a minimum of 20,000:1 s/n Ratio (peak-to-peak; 4 cm^{-1}, 1 minute).

- To protect the KBr Beamsplitter from fogging over time due to high humidity conditions without the use of a purge gas system and increase the lifespan of internal optical components, instrument must incorporate a doubly-protected interferometer: 1) Sealed and 2) Desiccated optical compartment, plus a moisture proof film on Beamsplitter (coating should be Ge plus an additional moisture-proof coating).

- Instrument must be operated by 32-bit software, operating under Windows2000 or WindowsXP, which incorporates the following functions: Spectrum measurement, Data Display and Comparison, Data processing (including quantitation and spectral searching), and easy-to-use report generator with customized layout features.

- Instrument software must incorporate an atmospheric correction function to compensate for the influences of water vapor and CO_2.

pH Without Glass

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IQ Scientific Instruments, Inc
2075-E Corte del Nogal
Carlsbad, CA 92011 USA

Telephone: (760) 930-6501

US & Canada (800) 276-0723

Fax: (760) 930-0615

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Product Spotlight

IQ150 pH/mV/Temperature System

"Dual technology" ISFET pH meter accepts both non-glass and traditional glass pH electrodes

This rugged pH meter is like having two pH meters in one! Now one affordable handheld pH meter lets you use both non-glass ISFET se pH probes and traditional glass pH electrodes. The stainless steel p stores dry and needs no maintenance. The durable ISFET silicon ch sensor eliminates problems associated with fragile glass bulb sensc excellent for field work, food testing, soil testing, industrial applicatio educational use. You can now choose a probe that best fits your pH needs. The general purpose stainless steel, non-glass ISFET pH p ideal for most applications. The heavy-duty graphite bodied pH prol useful for high temperatures, long term immersion and other applica unsuitable for ISFET pH probes.

Features include recognition of 7 buffers, 0.1 or 0.01 pH resolution, automatic or manual temperature compensation, and one-point or tv point calibration.

The ultra-rugged pH meter is armored in a water-resistant rubber hc and is engineered to withstand a 10-foot drop onto concrete. From t beginner to the demanding professional researcher, the IQ150 ISFE meter offers precision with ease of use.

IQ150-77: pH meter with General Purpose Probe

Price $599.00 [1] Quantity Add to Cart

IQ150-17: pH meter with Micro Probe

Price $639.00 [1] Quantity Add to Cart

IQ150NP: pH meter only (NO PROBE)

Price $340.00 [1] Quantity Add to Cart

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PROBE SELECTIONS

Stainless steel pH probe with ISFET silicon chip pH sensor. The virtually unbreakable pH sensor stores dry and requires no maintenance. Excellent general purpose pH prob used for liquids and viscous samples. Easy cleaning with a toothbrush and deterg

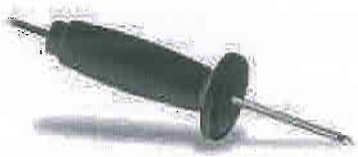
Part No. PH77-SS

Price $279.00 1 Quantity Add to Cart

Stainless steel micro pH probe with ISFET sensor. This pH probe has a round tip and r only 5mm immersion to obtain a stable reading.

Part No. PH17-SS

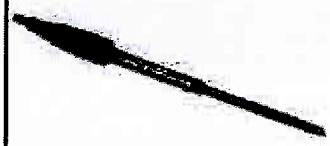
Price $309.00 1 Quantity Add to Cart



Stainless steel pH probe with ISFET silicon chip sensor. Heavy duty handle ideal for piercing applications.

Part No. PH57-SS

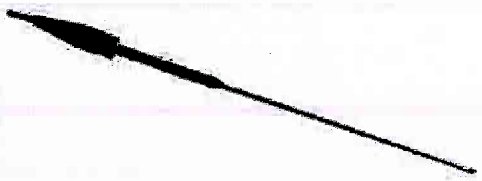
Price $309.00 1 Quantity Add to Cart



Stainless steel piercing tip micro pH probe is ideal for applications that require minimal of piercing. ISFET sensor stores dry, requires no maintenance and is easy to clea

Part No. PH37-SS

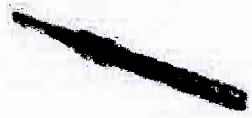
Price $309.00 1 Quantity Add to Cart



NMR Tube probe. This probe is the same as our micro probe except that the smaller s extended to a length of approximately 20 cm (8 in). This allows the probe to be inserte NMR tube container to measure the sample at the bottom of the tube. Immersion depth be approximately 5mm.

Part No. PH47-SS

Price $309.00 1 Quantity Add to Cart



Rugged epoxy bodied, glass bulb pH sensor. Built-in temperature sensor. A low-cost, purpose pH electrode with high accuracy and reliability.

Part No. PH30-GS

Price $119.00 1 Quantity Add to Cart

Standard ORP probe (BNC connector, 1m lead, 12x110mm barrel, platinum band).

Part No. ORP110-GS

Price $119.00 1 Quantity Add to Cart

Heavy duty graphite bodied pH probe with glass bulb sensor. This portable pH pro designed after the toughest in-line process analytical sensors. This pH probe is ideal f term immersion, high temperatures or samples that tend to foul electrodes. A huge d junction reference has a large surface area resistant to fouling.

Part No. PH40-GS

Price $179.00 1 Quantity Add to Cart

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Accessories

Field carrying case with calibrating kit.
Padded, water-resistant nylon fabric covering.
Shoulder strap, calibrating buffers and window pocket for operator's manual.
Part No. CC10

Price $49.00 1 Quantity Add to Cart

Photo Not Available

500 ml bottle of Probe Cleaning Solution.
Pepsin cleaning solution for removal of Protein Deposits.
Part No. PCS50

Price $29.00 1 Quantity Add to Cart

Set of four 500 ml bottles of calibrating buffers. Includes one each of pH 4.00, 7.00, 10.00 and a non-ionic surfactant electrode rinse.
Part No. CB30

Price $29.00 1 Quantity Add to Cart

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SPECIFICATIONS FOR IQ150 HANDHELD ISFET pH METER

Meter	**IQ150 pH/mV/Temperature** Dual Technology pH Meter accepts stainless steel non-glass pH probes or traditional glass pH electrodes. Shoc resistant holster and multiple language operator's manual included.
Probe	Choose from the selection of ISFET non-glass sensors with stainless steel pH probes and traditional glass pH electrodes.
Range	0.00 to 14.00 pH ± 1999 mV 0 to +100 °C (°C or °F Display)
Resolution	0.1 or 0.01 pH 0.1or 1.0 mV 0.1 °C
Accuracy	± 0.01 pH ± 0.1 mV ± 0.5 °C

Display	3-1/2 digit LCD
Temperature Compensation	Manual or Automatic 0 °C to +100 °C
Power	9 V (included) 120V or 240V AC adapter (optional)
Battery life	200 hours continuous/ 10 hour advance low battery warning
Dimensions	3.5" W x 7" H x 1.5" D (90mm x 180mm x 40mm)
Ship Weight	3.0 lbs. (1.3 kg

ters probes non glass stainless steel

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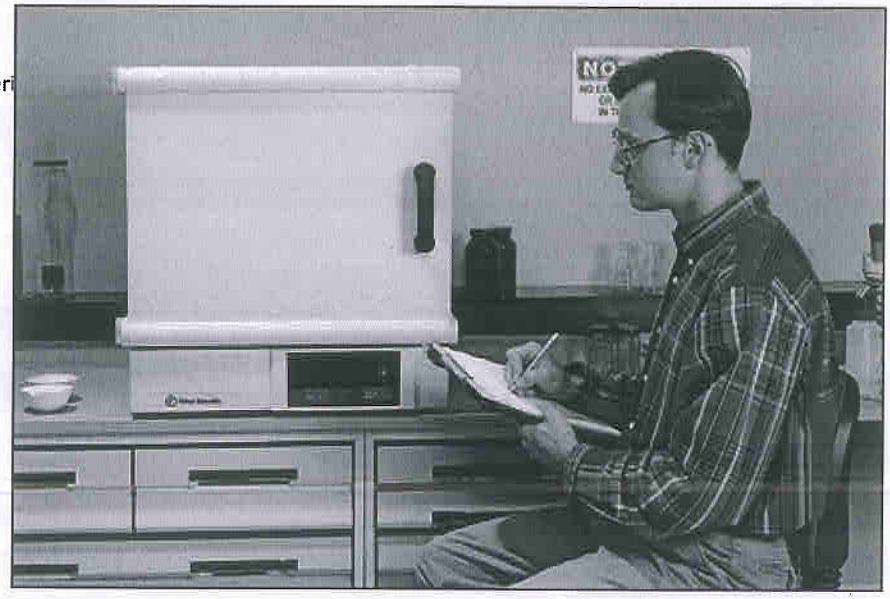
Fisher Isotemp* Premium Lab Ovens

Full-feature ovens available as gravity-flow or forced-air models in a variety of sizes.



13-247-725F

·Large, three-character, alphanumeri LED display

·Small, medium, and large workload capacities

·Choice of forced-air circulation or gravity flow

·Safety features include thick, 21/2 in. (6.4cm) layer of fiberglass insulation in walls, built-in safety backup in controller software, and circuit breaker to protect oven from power surge

·CSA approved

·12 month warranty

	Forced-Air Ovens			Gravity-Flow Ovens		
Model	Small	Medium	Large	Small	Medium	Large
Volume [Chamber] [METRIC] (Volume [Chamber] [ENGLISH])	0.07m^3 (2.5 cu. ft.)	0.11m^3 (3.75 cu. ft.)	0.14m^3 (5.0 cu. ft.)	0.07m^3 (2.5 cu. ft.)	0.11m^3 (3.75 cu. ft.)	0.14m^3 (5. cu. ft.)
Temperature [Range] [CENTIGRADE]	50° to 275°C	50° to 275°C	50° to 275°C	50° to 275°C	50° to 275°C	50° to 275
Uniformity at 200°C[1]	±3°C	±3°C	±3°C	±4°C	±4°C	±4°C
BTU per Hour (200°C)	2750	2925	3095	1325	2025	2140
Control [Temperature]	±0.5°C	±0.5°C	±0.5°C	±0.5°C	±0.5°C	±0.5°C
Recovery[2]	2 minutes	2 minutes	2.5 minutes	2 minutes	3 minutes	4 minutes
Air Changes per Hour	43	29	22	24	16	12

Exterior L x W x H[3]	231/2 x 253/4 x 26 in. (60 x 65 x 66cm)	231/2 x 253/4 x 33 in. (60 x 65 x 84cm)	231/2 x 253/4 x 391/4 in. (60 x 65 x 100cm)	231/2 x 253/4 x 26 in. (60 x 65 x 66cm)	231/2 x 253/4 x 33 in. (60 x 65 x 84cm)	231/2 x 253/4 x 391/4 in. (x 65 x 100cm)
Chamber D x W x H	18 x 18 x 131/2 in. (46 x 46 x 34cm)	18 x 18 x 20 in. (46 x 46 x 51cm)	18 x 18 x 261/2 in. (46 x 46 x 67cm)	18 x 18 x 131/2 in. (46 x 46 x 34cm)	18 x 18 x 20 in. (46 x 46 x 51cm)	18 x 18 x 261/2 in. (x 46 x 67c
Weight [Shipping] [ENGLISH]	120 lb. (54kg)	127 lb. (58kg)	135 lb. (61kg)	115 lb. (52kg)	130 lb. (59kg)	145 lb. (66kg)
Electrical Requirements[5]	120V 60Hz, 11A, 1300w	120V 60Hz, 15A, 1800w[4]	120V 60Hz, 15A, 1800w[4]	120V 60Hz, 11A, 1300w	120V 60Hz, 15A, 1800w[4]	120V 60Hz 15A, 1800
Cat. No.	13-247-725F	13-247-737F	13-247-750F	13-247-725G	13-247-737G	13-247-75(
Qty.						
Price Each	Each for $2,278.03	Each for $2,567.01	Each for $3,096.84	Each for $1,850.78	Each for $2,261.37	Each for $2,660.

over/each

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[1]*Average valve performed per ASTM* E 145.*

[2]*Door open 1 minute at 200°C.*

[3]*Length includes thickness of door; does not include handle.*

[4]*Units require a 20-amp outlet (NEMA 5-20R).*

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Compact Multimeter

Compact design, yet full of key features.

- DC/AC voltage and DC current
- Resistance measurement
- Transistor and diode test function
- Full overload protection
- Operates on one 9V transistor battery
- Includes meter, test leads, battery, and instructions
- Dimensions: 5L x 2.88W x 1 in.H

S47778

More Details

Characteristics	Cat. No.	Qty.	Price
Compact Multimeter	S47778 Vendor No.:M-1000C		Each for $14.90

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Economical Stopwatch

Affordable stopwatch tracks time up to 24 hours with 1/100th of a second resolution.

Fisher Science Education Catalog > Timers > Stopwatches > Economical Stopwatch

- Features time-out, cumulative split, and continuous timing
- Displays time of day, date, and day of the week
- Waterproof ABS plastic housing with quartz LCD
- Includes lanyard and battery

S43138

More Details

Characteristics	Cat. No.	Qty.	Price
Stopwatch 0.001 Second Resolution, Time-Out; Cumulative Split; Continuous Timing; Waterproof; Lanyard	S43138 Marathon Management No.:ST083000		Each for $6.45 Case of 200 fc $1,032.00

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NORTHWESTERN
STATE UNIVERSITY OF LOUISIANA
Natchitoches, LA 71497
A Member of the University of Louisiana System

DEPARTMENT OF CHEMISTRY AND PHYSICS
College of Science and Technology
Telephone: 318-357-5501
Fax: 318-357-4219

October 30, 2006

Dear STAT Grant Committee:

I wholeheartedly support the proposal submitted by Drs. Gillian Rudd (PI), Walter Flomer (Co-PI), and Tye Botting (Co-PI) to improve the technology in our chemistry labs. The infrared spectrometer (with accompanying computer and spectrometer software) will be invaluable for regular use with organic, biochemistry, analytical, and inorganic labs. The current one in regular use needs to be updated. Precisely measuring pH meters and probes are needed in the general, pre-nursing, and analytical labs. Especially since these are "student-proof," they allow for new lab experiments to be implemented in the general chemistry lab. Properly functioning lab ovens are also needed in each lab room to prevent having to carry a lab apparatus or chemical sample from one room to another, which clearly could become a safety issue.

These items are definitely needed and will significantly improve all of our chemistry labs, but are cost-prohibitive to purchase solely from lab fees. Your serious consideration of this proposal is appreciated.

Sincerely,

Paul Withey

Dr. Paul Withey
Head, Dept. of Chemistry and Physics

COLLEGE OF SCIENCE & TECHNOLOGY

October 30, 2006 OFFICE OF THE DEAN

To Whom It May Concern:

I give my full support for this Student Technology Grant being submitted by the Department of Chemistry and Physics. Drs. Rudd, Botting and Flomer have done an excellent job at analyzing problems with the chemistry laboratory and have figured out a way to fix it.

I look forward to seeing the outcome of this project. This project will give students a better understanding of chemistry from the utilization of this laboratory modification.

I am proud of their hard work and dedication at trying to improve the department and the college.

Sincerely,

Austin Temple, Ph.D.
Professor of Mathematics
Dean, Science and Technology

Northwestern State University, Natchitoches, Louisiana 71497
A Member of the University of Louisiana System
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Description

OptiPlex 745 Small Form Factor

Date & Time: November 13,2006 2:49 PM CST

SYSTEM COMPONENTS

OptiPlex 745 Small Form Factor Qty 1

Intel® Core™ 2 Duo Processor E6400 (2.13GHz, 2M, 1066MHz FSB), Genuine Windows® XP Professional, SP2, x32, with Media, English Unit Price $1,405.98

Catalog Number: **25 E1778**

Module	Description	Show Details
OptiPlex 745 Small Form Factor	Intel® Core™ 2 Duo Processor E6400 (2.13GHz, 2M, 1066MHz FSB)	
Operating System(s)	Genuine Windows® XP Professional, SP2, x32, with Media, English	
File System	NTFS File System for all Operating Systems	
Memory	1.0GB DDR2 Non-ECC SDRAM, 667MHz, (1DIMM)	
Keyboard	Dell USB Keyboard, No Hot Keys, English, Black	
Monitors	Dell 17 inch UltraSharp™ 1707FP Flat Panel, Adjustable Stand, VGA/DVI	
Video Card	128MB ATI Radeon X1300 (1 DVI/1 TV-out), low profile	
Boot Hard Drives	80GB SATA 3.0Gb/s and 8MB DataBurst Cache™	
Floppy Drive and Media Card Reader Options	Dell 13 in 1 USB Media Card Reader	
Mouse	Dell USB 5-Button Premium Optical Mouse, Black	
Lead Free Motherboard	RoHS Compliant Lead Free Chassis and Motherboard	
Removable Media Storage Devices	8X Slimline DVD+/-RW	

Speakers	No Speaker
Resource CD	No Resource CD
Dell Energy Smart	Dell Energy Smart Enable
Security Hardware	Chassis intrusion switch option
Optical Drive Enhancement Software	Cyberlink Power DVD™ and Roxio Creator™ Dell Edition
Hardware Support Services	4 Year Limited Warranty plus 4 Year NBD On-Site Service
Installation Support Services	No Onsite System Setup
Express Upgrade to Windows Vista	No Express Upgrade to Windows Vista Selected
Labels	Vista Capable Sticker

TOTAL:$1,405.98

	Total Price
Sub-total	**$1,405.98**
Shipping & Handling	$0.00
Tax*	--
Total Price*	--

sn ECM3

NORTHWESTERN STATE
UNIVERSITY OF LOUISIANA
Natchitoches, LA 71497

Student Technology
Watson Library, Room 113

Telephone (318) 357-6482
FAX (318) 357-6480

January 10, 2007

Dr. Gillian Rudd
Northwestern State University
Chemistry & Physics
Natchitoches, LA 71497

Dear Dr. Rudd,

It is with pleasure that the STAT (Student Technology Advisory Team) has fully funded your grant proposal for Fiscal Year 2006-07 in the amount of $33,824.00.

Ordering of equipment listed in the grant proposal will take place during the month of January.

Please be reminded that your grant was funded through Northwestern Student Technology Fees, all equipment purchased, therefore, must be used exclusively and directly for/by Northwestern students.

You are commended for, and encouraged to continue your efforts to enrich the learning environment for students at Northwestern State University. Your time, effort, and vision in service of the students are greatly appreciated. If you have questions or need additional information please contact me by phone or via email at: long@nsula.edu.

Sincerely,

Jennifer Long Martin
Student Technology

cc: Dr. Paul Withey