1) PC quote
2) license
3) network / standalone

Student Technology Fee

Grant Proposal

2008.021

2007-08

Dr. Jim McCrory

Approved Denied

Comment: The quote for the PC does not appear to be from a state contract

Diana Hamilton

Approved Denied

Comment: _____

Gary Gatch

Approved Denied

Comment: _____

Mike McDonald

Approved Denied

Comment: invalid E-Quote Appears not to be State Contr.

Dale Martin

Approved Denied

Comment: mj

Student Technology Fee
Funding Proposal Request From
Fiscal Year 2006-07
Northwestern State University of Louisiana

2008.021
#5 2.H.

Prepared by: D. Owens, T. Johnson, J. Quiros, D. Green (American Society for Microbiology Club President, Life Science Club President, Beta Beta Beta President, and JOVE Representative, respectively) (Officer Rep of Biology Clubs)

M. Land, Ph.D., Supervising Faculty For: Biological Sciences

Department/Unit: Biological Sciences College: Science and Technology Campus: Natchitoches

Which NSTEP Goals/Objectives does this project meet? Goals/Objectives 1, 3, and 8

Requested equipment will be located/installed/housed? Building 90 (Bienvenu Hall) Room 226A

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

Which individual will be responsible for property control of the requested equipment? M. Land, Ph.D.

Signature: DrinOwens MLand Date: 31 Oct 07

Grant Proposal Requested Amount: $ **48,472.08** Budget Attached (circle one): (YES) / NO

Grant delivered to Student Technology located in Watson Library, Room 113. Date: 31 October 2007

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

The target audience for this project is undergraduate students of the Department of Biological Sciences (618 Biology Majors and 725 Vet Tech Majors) an any other department that take laboratory courses offered by the Department of Biological Sciences. Also, undergraduate students conducting faculty-supervised, independent research (such as those students involved in Beta Beta Beta and JOVE) will use the requested equipment. Furthermore, any student who desired to use the requested equipment for a class or laboratory assignment or for an independent research project will have access. In short, any undergraduate student at Northwestern State University will have access to the requested equipment.

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

We are seeking to obtain digital microscopy equipment that will complement the technology we currently have access to in our department. The acquisition of such equipment will provide NSU students will access to the most technically advanced microscopy equipment (with the exception of electron or confocal microscopy equipment). The requested equipment can capture analog microscopic images and store those images digitally without loss of resolution and without the need for an external camera source.

To enhance the experience of laboratory and research students, the following equipment is requested:

1. A brightfield/epiflourescent digital microscope capable of capturing highly resolved images of protoza and bacteria. This microscope is also capable of detecting fluorescently-tagged proteins that have been generated for use in undergraduate student research projects.
2. A digital microscope with darkfield and phase-contrast capabilities. This microscope will be used to examine parasites and bacteria that have specialized forms of motility.
3. A digital, inverted microscope capable of resolving the morphology of mammalian cells in culture.
4. A digital, dissecting microscope with the resolution capacity needed to perform invertebrate dissection as well as zygote and invertebrate sorting.
5. A computer capable of processing the digital images created using the above-described microscopes. This computer must have the appropriate speed and power needed to run the necessary image analysis software.

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

A) Students that are in microscopy-intensive courses (such as MBIO2061, MBIO3091, MBIO4121, and MBIO4211) will use the above-described microscopes to capture digital images their specimens. These images will be stored either on a flash drive or on the departmental server. The digital images can be used to create a CD record of student-generated images. Such methods will promote a student-driven, self-directed, and "student-owned" learning system.

B) Students will have access to a database containing a compilation of the above-described images. These images, which are generated from different slides/projects using different techniques, can be used to detect a slight differences or changes in specimens.

C) Undergraduate student researchers (either in the JOVE program and registered in MBIO4950 independent research courses) will have access to the requested equipment. This access will enhance their research capabilities as well as their technical skill sets, two very important attributes for students interested in persuing graduate or profession schools. In the past, undergraduate students from the Department of Biological Sciences have given presentations at Research Day, at monthly JOVE meetings, and/or at regional meetings. Their research posters and/or Power Point presentations, which will contain images captured using the requested equipment, will be available for review.

4. Indicate how each objective will be evaluated.

1. A log will be maintained to record the microscope/computer usage for courses. Entries will include professor, course, and student user names. The digitized images created using the requested equipment will be burned onto a CD and/or kept on the departmental server. These saved images will be available for student review and study. Additionally, professors can design lesson plans involving the gathering of data in a laboratory setting, and the generated results can be manipulated and interpreted.

2 and 3. A log will be maintained to record the microscope/computer usage for research. Entries will include student and faculty research advisor names. The captured images can be used as data in either research publications or presentations at professional meetings. These images can also be used by professors interested in developing educational PowerPoint presentations and/or on-line learning exercises.

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?

NSTEP Objectives

 # 1. To improve access to technology by students, faculty and staff at NSU.

With the purchase of the requested equipment, the students and faculty of the Department of Biological Sciences will be able to perform technologically-advanced digital microscopic imaging. This equipment will not replace outdated equipment, but rather will fill a void in the technologies currently available in the Department.

#3. To upgrade student technology laboratories with modern technology

Students currently enrolled in microscopy-intensive courses (as outlined above) currently have no means with which to capture advanced, highly-resolved images. Given that microscope usage plays a critical role in the biological investigations performed in these classes, the requested equipment is desperately needed to teach students how to capture and manipulate high-quality microscopic images for study, reports, and/or presentations.

#8. To encourage Innovation and research

A. Over the last five years, Drs. Land, Akin, Osborn, and Hatahet have had approximately thirty students present research projects at national or regional scientific meetings. Nearly all of these projects involved some microscopy component. While data was generated, it was often presented in either verbal or written form as adequate microscopic images were not available. In the cases in which images were used, they were obtained using 35mm camera adaptors on oculars or using an Intel Explorer scope (a children's microscope from Toys-R-Us). As a direct result of these limitations, research has not been directed in areas that require extensive microscopy techniques.

The addition of new faculty members has introduced another the need for microscopy (examination of tissue cultures and other cell manipulations). This acquisition of the requested equipment will provide students with additional opportunities to investigate new areas of research and give both students and faculty members more the latitude in project exploration and grant writing involving microscopy-intensive interests.

B. By acquiring this equipment and achieving the above-described NSTEP goals, the goals of the university will also met and enhanced.

6. Provide a justification for funding the 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.

The requested equipment will compliment several facets of the Department of Biological Sciences. Each of the requested microscopes has a unique use, and their usage in each class or research area will vary. However, the courses that could benefit from the use of the requested equipment are as follows:

Introductory Microbiology Lab – 4 sections ~30 students/section – every Fall and Spring
Pathogenic Microbiology – 2 sections ~30 students/section – every Fall
Invertebrate Zoology – 1 section ~30 students/section – every Fall
Virology – 1 section ~ 30 students/section every Fall
Parasitology – 2 sections ~ 30 students/section – Every Fall – VTEC course
Forensic Entomology – 1 section ~ 20 students/section every Fall
Immunology – 2 sections ~30 students/section – Spring
Food Microbiology – 1 section ~ 30 students/section – Spring

Botany – 2 sections ~ 30 students every spring/section – 1 session in the summer
Hematology (Vet Hospital Tech) – 1 section ~ 30 students/section every Spring– VTEC course
Applied Microbiology – 1 section ~ 30 students/section – every other Spring
Limnology – 1 section ~ 20 students/section – every other Spring
Entomology – 1 section ~ 20 students/section every Spring
Histology – 1 section ~ 30 students/section every Summer

MBIO/ZOOL4950 Independent Research – Drs. Akin, Land, Osborn, Lemoine and Hatahet – while the number of enrolled students vary from semester-to-semester and year-to-year (due to graduation and recruitment of new students), each professor typically has 5 to 10 students working on independent research projects.

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?

Each listed officer or designated individual from the described group will be responsible for collecting and coordinating the digital images, and categorizing and providing study CDs for courses as images are generated

Dr. Land will be responsible for ordering the equipment and informing the appropriate faculty. Dr. Land has previously received internal and external funding and has completed all tasks required by the granting agencies.

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

No specific personnel will be required for the project (other than the professors who will instruct the students on the proper use of the equipment).

9. Provide a schedule for implementation and evaluation.

As soon as the monies are appropriated, the equipment will be ordered. All requested equipment can be purchased from state contract vendors. Therefore, time for bidding will not be needed and no special expertise will be needed for installation of the equipment. Implementation will be immediate.

Evaluation of this project will include the user log book, the study CDs generated from student images, the images stored on the departmental server, and the posters/presentations organized by student researchers.

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

The expected life-span of a microscope is twenty years. These scopes will have very long service lives. The software and requested computer have an estimated life of five years. There are no expected upgrades for the software.

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 Tech Fee grant

The equipment will be housed in Room 226A in Bienvenu Hall. This room is readily accessible but on a different lock tumbler from the rest of Bienvenu Hall. Only biology professors have a key to this room.

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

DETAILED BUDGET – *State Contract Computer Specification Pages to follow*		
Fisher Scientific – On State Contract		
1. Digital Fluorescent Microscope	# 12-070-611	$31,485.00
2. Digital Dissecting Scope	#12-564-163	$6,639.00
3. Digital Inverted	Scope # 12-575-252	$5,800.00
VWR – On State Contract		
4. Laboratory Microscope, Planachromatic	#19000-136	$1,386.90
5. 40x Phase Contrast Attachment	#19000-064	33.12
6. Darkfield Attachment	#19000-070	33.12
7. Phase Contrast Attachment	# 19000-068	869.40
Planachromatic Obj 4x/0.1	# 19000-046	22.36
Planachromatic Obj 10x/0.25	# 19000-048	40.58
Planachromatic Obj 20x/0.45	# 19000-050	81.98
Planachromatic Obj 40x/0.65	# 19000-052	84.46
Planachromatic Obj 60x/0.85	# 19000-054	124.20
Planachromatic Obj 100x/1.25	# 19000-056	129.17
Widefield Eyepieces wf10x,18mm	# 19000-030	24.84
Widefield Eyepieces wf10x,20mm	# 19000-032	31.46
Widefield Eyepieces wf 15x,20mm	# 19000-090	34.78
Widefield Eyepieces wf 20x11mm	# 19000-034	36.43
Moticap Capture Card	19000-152	181.34
		47,037.24
Dell - Optiplex 755 Desktop	E-Quote Number: E008828982	$1,434.84
		Total 48,472.08

This equipment is NOT to be checked out

STUDENT GOVERNMENT ASSOCIATION
NORTHWESTERN STATE UNIVERSITY
A Member of the University of Louisiana System
Natchitoches, Louisiana
318.357.4501

October 30, 2007

Student Technology Advisory Team:

I fully support the efforts of the Biology Department to seek and obtain funding from the Student Technology Fund to upgrade their microscopes. This project would be most beneficial to our students and will allow our students to have access to top quality equipment. This project will serve to enhance the new equipment obtained by the Biology Department and better the academic research of our students.

Respectfully Yours,

Shayne Creppel
President
Northwestern State University
Student Government Association

Jorkem Demons!!

DEPARTMENT OF BIOLOGICAL SCIENCES
COLLEGE OF SCIENCE & TECHNOLOGY
Phone (318) 357-5323, Fax (318) 357-4518

October 31, 2007

Ms. Jennifer Long Martin
Student Technology Support
113D Watson Library

Dear. Ms. Long Martin

I am writing to support this application for this Student Technology Fee grant.

The American society for Microbiology Club, Life Science Club, and Beta Beta Beta, are sponsoring this application to purchase several state of the art digital microscopes. The selection should cover the needs for a wide array of microscopic analyses, including fluorescently tagged molecule, bacteria, and animal cells. Purchase of such equipment will significantly enhance the technology content in the department and put us on even keel with larger research universities.

Thank for your continued support of the Department of Biological Sciences.

Zafer Hatahet, Ph.D.

Professor and Head

Carl Zeiss* Axio* Imager* D1 Digital Imaging Microscopes > Darkfield, fluorescence, multi-application

Microscope, Digital Imaging; Axio Imager D1; Carl Zeiss; darkfield, fluorescence, multi-application

See details

Includes:

- Stand, Ergo phototube, eyepieces, 75 x 50mm mechanical stage, right-hand z-drive, specimen holder, objectives listed above, condenser, 12V 100w bulb, light manager, conversion and white balance filters, filter wheel and filter set, dust cover, manual
- AxioImager D1 Microscope for Brightfield and Epi-Flourescence adds: fluorescence shutter, slider with field disphragm, attenuator, 6X turret; fluorescence cube and filter sets 01 EX BP 365/12, 10 EX BP450-490, 15 EX BP 546/12; antiglare screen, HBO burner, lamp and power supply

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Item Details Accessories

Description	Catalog Number	Quantity	Price
Darkfield, fluorescence, multi-application	12-070-611 Carl Zeiss No.:43000101		Each for $31,485.00

Fisher Stereomaster* Digital Zoom LCD Viewing Systems > LCD Monoocular, 5.6X to 52X zoom range; Fiber optic illumination dual gooseneck light guides.

Fisher Stereomaster* Digital Zoom LCD Viewing System with Boom Stand

See details

Required Accessories : System Requirements

USB 1.1 Recommended Requirements: PC with Pentium* II, 266MHz processor or higher, Windows* 98, 2000, ME or XP operating system, USB 1.1 port, 256MB RAM

Item Details Accessories

Description	Catalog Number	Quantity	Price
LCD Monoocular, 5.6X to 52X zoom range; Fiber optic illumination dual gooseneck light guides.	12-564-163		Each for $6,639.00

Fisher Micromaster* Digital Inverted Microscope with Infinity Optics > Inverted Microscope with Infinity Optics, digital camera integarted into body, Micron software, USB 2.0 connection. Objectives: 4X brightfield, 10X phase, 20X phase. Body: Binocular.

Fisher Micromaster* Digital Inverted Microscope with Infinity Optics, digital camera integarted into body, Micron software, USB 2.0 connection. Objectives: 4X brightfield, 10X phase, 20X phase. Body: Binocular.

See details

12-575-250

Item Details Images Accessories

Description	Catalog Number	Quantity	Price

4

Digital Compound Microscopes, Motic*

, *Digital*

Supplier: Motic

GO

These all-in-one concept microscopes combine a routine laboratory or university microscope with a built-in high resolution 8.5mm ($^1/_3$") CCD camera, which can produce images on TVs and monitors with approximately 80% field of view through the eyepiece. A built-in grabber converts an analog signal to digital signal. The precise graduation of the low position coaxial control mechanical stage allows quick finding and marking of specific areas on the slide. The stage has a travel range of 76x50mm (X-Y), graduated to 1mm with vernier reading to 0.1mm. The ball bearing-mounted, reversed quintuple nosepiece has a ribbed grip for easy rotation and is positioned closer to the microscope body for easy access to the specimen.

The laboratory microscopes feature a Siedentopf trinocular phototube inclined at 30°; 12V, 20W halogen Koehler illumination; plug and play computer applications with simple USB plug; slide-in, centerable 1.25 Abbe condenser with Iris diaphragm for maximum flexibility; and the Motic Images 2000 user-friendly image processing and analyzing software. Microscopes are available with achromatic or planachromatic objectives.

The university microscope features a Jentzsch trinocular phototube inclined at 30°; 12V, 20W halogen illumination; 1.25 Abbe condenser with Iris diaphragm for maximum flexibility; and the Motic Images 2000 user-friendly image processing and analyzing software.

The high-quality phase contrast unit (**19000-068**) consists of centerable five-position condenser; brightfield, phase 10x, 20x, 40x, and 100x oil objectives; and four basic planachromatic 10x, 20x, 40x, and 100x phase objectives. The optional Moticap capture card (**19000-152**) allows a real time image size of 640x480 pixels, provides 30 frames per second transmission speed, and has twain drivers for still image capturing.

Ordering Information: Supplied with USB, S-Video, and RCA video cables. Microscopes include eyepieces; 4x, 10x, 40x (spring), and 100x (spring, oil) objectives; and a dust cover. For additional accessories and options, contact your VWR sales representative.

ADD TO BASKET | VIEW SHOPPING BASKET

Description	Motic No.	VWR Catalog#	Unit	Your Price	Qty
Laboratory Microscope, Planachromatic	DB86.535.101	*19000-136*	Each	$1,386.90	

5, 6 & 7

Phase Contrast and Darkfield Accessories

40x Phase Contrast Attachment	SW01.1833B	19000-064	Each	$33.12	0
Darkfield Attachment	SW01.2391B	*19000-070*	Each	$33.12	0
High-Quality Phase Contrast Unit	RSO8.000005A	19000-068	Each	$869.40	

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Planachromatic Objectives

4x/0.1	SG01.S01222	19000-046	Each	$22.36	0
10x/0.25	SG01.S02222	19000-048	Each	$40.58	0

20x/0.45	SG01.S03222	19000-050	Each	$81.98	0	
40x/0.65 (Spring)	SG01.S04222	19000-052	Each	$84.46	0	
60x/0.85 (Spring)	SG01.S05222	19000-054	Each	$124.20	0	
100x/1.25 (Spring, Oil)	SG01.S06222	19000-056	Each	$129.17	0	
Widefield Eyepieces						
WF10x, 18 mm	SG02.S0105	19000-030	Each	$24.84	0	
WF10x, 20 mm	SG02.S0121	19000-032	Each	$31.46	0	
WF15x, 20 mm	SG02.S0204	19000-090	Each	$34.78	0	
WF20x, 11 mm	SG02.S0405	19000-034	Each	$36.43		
Moticap L320 PCI Capture Card	C001.02101	19000-152	Each	$181.34		

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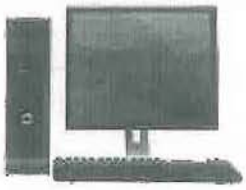

Optiplex 755 Desktop with Monitor

Optiplex 755 Desktop

$1,434.84

Add To Cart

Configure by Drop-down Configure by List **Configuration Details**

Date	10/30/2007 4:04 PM
Catalog Number	84 Retail RC961325
OptiPlex 755 Desktop	Intel® Core™ 2 Duo Processor E4400 (2.0GHz, 2M, 800MHz FSB) 7520D - [223-0600]
Operating System(s)	Genuine Windows® XP Professional, SP2, x32, with Media, English XPP232E - [420-6287]
Ship Packaging Options	Shipping Material for System, Desktop DTSHIP - [310-9331]
Installation Support Services	No Onsite System Setup NOINSTL - [900-9987]

Basic Systems Management Mode	ASF Basic Hardware Enabled Systems Management BCSM - [310-9492]
File System	NTFS File System for all Operating Systems NTFS - [420-3699]
Memory	2GB DDR2 Non-ECC SDRAM,667MHz, (2 DIMM) 2G2N62 - [311-7440]
Video Card	256MB ATI Radeon 2400 XT, Dual Monitor DVI or VGA (TV-out), low profile 256VAIL -[320-5744]
Monitors	Dell 24 inch UltraSharp™ 2407FPW-HC Widescreen, Adjustable Stand, VGA/ 2407HCW - [320-5643]
Keyboard	Dell USB Keyboard, No Hot Keys EUSB - [310-8010]
Mouse	Dell USB 2-Button Optical Mouse with Scroll, Black USBO - [310-8009]
Boot Hard Drives	80GB SATA 3.0Gb/s and 8MB DataBurst Cache™ 80S - [341-5472]
Floppy Drive and Media Reader	No Floppy Drive NFDENH - [341-4072]
Speakers	Internal Dell Business Audio Speaker INTSPK - [313-3351]
Removable Media Storage Devices	16X DVD+/-RW SATA, Roxio Creator™ CyberlinkPowerDVD™ DRM16 - [313-5427]

Resource CD and DVD	Resources CD contains Diagnostics and Driver for Dell OptiPlex Systems RCD - [310-9380]
Dell Energy Smart	Dell Energy Smart Enable ESMART - [310-9504]
Hardware Support Services	5 Year NBD Plus (NBD onsite w/ Gold Tech Support) PUB5YR - [465-5281 980-0344 983-6790 987-1247 987-1257 987-9069 987-9237 987-9238]
Asset Tag on System Chassis (CFI)	GTS Medium Asset Tag WITHOUT Customer Name (TAG 10) TAG10 - [365-1392]

Optiplex 755 Desktop with Monitor

Optiplex 755 Desktop

$1,434.84