NORTHWESTERN STATE
UNIVERSITY OF LOUISIANA

Full Funding Approved

13-Jan 2024

Internal Use Only

STUDENT TECHNOLOGY FEE
GRANT PROPOSAL REQUEST FORM
FISCAL YEAR 2023-24

ALL BLANKS MUST BE FILLED COMPLETELY

Prepared by: Trenton Kaine O'Neal for Microbiology lab equipment upgrades

Department/Unit: Biology and Microbiology College: Arts and Sciences Campus: Natchitoches

Which NSTEP Goals/Objectives does this project meet? 1, 2, 3, 7, 8, 10

Requested equipment will be located/installed/housed? Bldg Kyser Room 229

Does the department receive lab fees? YES ☑ NO ☐

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: Trenton O'Neal Digitally signed by Trenton O'Neal Date: 2023.11.16 08:57:01 -06'00' Date: 11.16.2023

Proposal Requested Amount: $17,085.09 Budget Attached: YES ☑ NO ☐

Email completed request to Chris Brumley at brumleyc@nsula.edu

Funding from the Student Technology Fee is allocating funds to departments and individual grants, awarded on a competitive basis, which advance the teaching/learning process within the mission of the University. All requests will be considered in this context, as articulated herein and as reflected in the unit's technology plan. Proposals should enable or enhance the ability of Northwestern students to access and assimilate large mounts of information, further their professional competence, and provide state of the art technologies in their field. The nature of, and rationale for, a request for student technology fee allocation must be consistent with the University's and requesting unit's technology plan.

- Grant applications must be submitted by November 16th at 4:00 pm
- Funding decisions will be made during the month of December 2023
- If your grant is approved by STAT, you will be informed via email

STUDENT TECHNOLOGY FEE
GRANT PROPOSAL REQUEST FORM GUIDELINES

The proposal must include all specifications, descriptions, model numbers, quotations, cost, state contract numbers, and vendors for each item. If the proposal does not include all requested information, it will be returned.

1. Describe target audience.
2. Describe project/initiative for which you are requesting funds.
3. State measurable objective 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 objective(s) will 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 students that will be served per academic year and in what ways. Please indicate also any unique needs of the target 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 the implementation and evaluation.
10. Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five (5) years.
11. Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through the Student Technology Fee. If you are requesting equipment that will either be checked out to students or moved within the department, you must provide a checkout/loan policy.
12. Does the department that is requesting equipment receive lab fees? If so, please provide a justification for requesting funds from the Student Technology Fee over using lab fees from your department.
13. Attach a detailed budget.
14. Attach two (2) letters of support for the project from the following individuals: the requesting department's Dean, the appropriate Vice President or student request, the SGA President from the requesting campus.

1. **Describe target audience.**

Currently the labs on the Kyser second floor are utilized for Microbiology courses (2 sections of BIOL2061- Microbiology 1 Lab, BIOL2091-Microbiology 2 Lab, 1-2 sections of BIOL4990-Capstone Course Microbiology, BIOL4121-Pathogenic Microbiology) and JOVE (undergraduate) research across multiple projects.

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

This project has three objectives towards upgrading the Kyser Microbiology and research laboratory.

1. Upgrade the BIOL 2061-Microbiology 1 laboratory course equipment to include **15 sets of micro-pipettors** which will allow students to develop skills associated with one of the most important tools utilized throughout microbiology, healthcare, etc. Currently students utilize swabs in place of the micro-pipettor which is not cost efficient and does not accurately teach the skill necessary for accurate counting of bacterial colonies or plating of bacterial cultures onto media for colony count experiments. This will further benefit the summer camps held within this laboratory along with BIOL4210/4211-Applied and Industrial Microbiology and BIOL3130-Microbial Genomics.
2. Purchase of a **Qubit fluorometer** to improve on-campus next generation sequencing and molecular technique development. Currently the department has a nanopore MinION which is a next-next generation sequencer which can allow the sequencing of long DNA sequences. For a successful sequencing run, we require the ability to measure the concentration of the DNA/RNA accurately and precisely in samples. This instrument will also be used for the improvement of techniques within several course including BIOL206-Microbiology 1 Lab, BIOL2091-Microbiology 2 lab, BIOL4990-Capstone Course Microbiology, BIOL3270-Genetics, BIOL4300-Molecular Biology, BIOL3130-Microbial Genomics, Scholars college biology/research and several JOVE research projects.
3. Purchase of **1 ducted fume hoods** for the Kyser 229 student technology laboratory. This laboratory currently houses the departments GCMS (gas chromatography-mass spectrometer) along with the associated equipment necessarily for extraction of compounds from samples to later be analyzed by the GCMS. The extraction process often requires the use of various organic solvents which can be harmful under certain conditions. The purchase of these hoods will provide a safe environment for the extraction processes and allow for the improvement of extraction techniques which often utilize more hazardous solvents. This will benefit BIOL4990-Capstone Course Microbiology, BIOL4210/4211-Applied and Industrial Microbiology, BIOL3130-Microbial Genomics and several JOVE research projects.

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

The purchase of micro-pipettors will be measured by identifying the student gained ability to properly perform serial dilutions and plate bacterial samples utilizing current techniques employed in industry, healthcare and research. The purchase of the Qubit Fluorometer will be

measured by the ability to educate students on the different equipment required for DNA concentration versus purity; additionally, the use of the technology to improve on-campus sequencing efforts and improve DNA sequencing turn-around on course and JOVE projects. The effectiveness of purchasing a ducted fume hood will be evaluated by the improved student safety along with the expanded use of additional solvents, previously not used because of potential hazards, which will improve the possible compounds extracted during sample processing.

4. **Indicate how each project objective will be evaluated.**

Micro-pipettors usage will be evaluated across the number of students within each lab and replication of in-lab experimentation across all lab sections utilizing them. The Qubit fluorometer and fume hoods will be evaluated based on the number of new publications and presentations created by Capstone and JOVE students which utilized the equipment.

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

NSTEP Objectives advanced:

1. To Improve access to technology by students, faculty, and staff at Northwestern State University.
2. To provide classrooms with updated technology and multimedia.
3. To upgrade laboratories with modem technology.
7. To encourages technology initiatives by faculty, staff and students.
8. To encourage innovation and research.
10. To maintain a technology budget for the University, its colleges, and its Directorates

University Technology Plan Goals advanced:

Provide non-credit instructional programs for individuals to allow the fullest possible use of information technology resources

6. **Provide a justification for 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.**

Funding of this project will benefit several students, faculty and departments. The micro-pipettors and qubit fluorometer will be used by faculty in both the Department of Biology and Microbiology and the Scholars college. In the 2024 year, these two items will see ~225 students spread across several course previously stated under item #2. The fume hood will benefit ~60 biology and JOVE students who will use it to prepare samples for down range processes such as GC-MS. The fume hood has the added benefit of providing a safe space for students to perform the extractions without needing to travel from other facilities with potentially volatile samples.

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.**

Mr. Trenton O'Neal has been performing microbiology research and working in government research labs since 2013 which involved the use of all three pieces of equipment listed above and will oversee the success and correct use of all equipment.
Dr. Chris Lyles has been performing microbiology research since 2005 and has been involved in the use, maintenance, and upkeep of all the equipment listed above.

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

The micro-pipettors will require no assembly upon arrival. The Quibit Fluorometer only requires WiFi access for software update but can operate without internet access. Fume Hoods will require onsite assembly.

9. Provide a schedule for the implementation and evaluation.

Implementation will begin as soon as each piece of equipment is acquired. Evaluation will be performed after the next full academic year after each piece of equipment arrives. Special educational pricing for the Qubit fluorometer from *Fisher Scientific Education* is available until the end of December (see attached quote). The micro-pipettors will be purchased from Amazon as soon as funds become available. The fume hood has a short lead time but is quoted for purchase by December 31st but should be functional shortly upon arrival.

10. Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five (5) years.

With proper care, micro-pipettors have a life span of 5-10 years or longer, in most cases the tool will just require recalibration which can be performed by course instructors. The qubit fluorometer does not receive constant usage and will be viable for several years allowing for ~1000 reactions before requiring any maintenance. The fume hoods will have a lifespan of around 10 years.

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

All of the listed items in section 2 will be kept under lock and key within the Kyser 229 (qubit fluorometer and fume hoods) or Kyser 235 labs (micro-pipettors).

13.Does the department that is requesting equipment receive lab fees? If so, please provide a justification for requesting funds from the Student Technology Fee over using lab fees from your department.

The Department of Biology and Microbiology collects lab fees from students. These lab fees are used across the many different biology laboratory and capstone sections. Many of these labs

require various consumables which reduce the budget quickly and removes the possibility of purchasing equipment in order to improve the lab spaces without funding assistance from grants.

14.Attach a detailed budget.

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

Budget:

Item	Vendor	Quantity	Cost
Qubit Flex	Fisher Science Education	1	$6854.10
IVYX Scientific complete 4 micropipettes kit	Amazon	15	$2985.00 @$199.00
Air Jade Dual Hose window vent kit	Amazon	1	$35.99
Ducted exhaust fume hood	Cleatech	1	$7210.00
		Total	$17,085.09

Shopping Cart

Price

Air Jade Dual Hose Portable Air Conditioner Window Seal Kit, 5.9" Dia… **$35.99**

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Color: White, 5.9" Diameter

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IVYX Scientific Complete 4 Micropipettes Kit: 4 Pipettors (0.5-10µ… **$199.00**

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LACHOI Lab Single C…
9
$32.99
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Sales Quotation

*Quote Nbr	Creation Date	Due Date	Page
3300-1182-41	10/27/2023		1 of 1

Payment Terms	Delivery Terms
NET 30 DAYS	DEST
Valid To	Prepared By
12/31/2023	LAPALOMBELLA, GIANLU
Customer Reference	Sales Representative
RFQ 10/27/23	GIANLUCA LAPALOMBELLA

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Submitted To:	Customer Account: 481040-001
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Nbr	Qty	UN	Catalog Number	Description	Unit Price	Extended Price
1	1	EA	Q45893	QUBIT FLEX NGS STARTER KIT	6,854.10	6,854.10

Invitrogen Qubit Flex NGS Starter Kit, Excitation Wavelength: Blue LED (max 460?480 nm), Red LED (max 620?640 nm), Product Line: Qubit, For Use With: DNA Quantification, RNA Quantification, MicroRNA Quantification, Protein Quantification, Sample Volume: 1 to 20 uL
Vendor Catalog # Q45893
Hazardous Material
This item is being sold as 1 per each

MERCHANDISE TOTAL 6,854.10

NOTES:
We now offer highly competitive financing with low monthly payments. Please contact your local sales representative for more information.

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Quotation

Quote To: Northwestern state university of Louisiana
135 Sam sibley Dr, rn 112
Natchitoches, LA 71497
United States

Quote Revison:

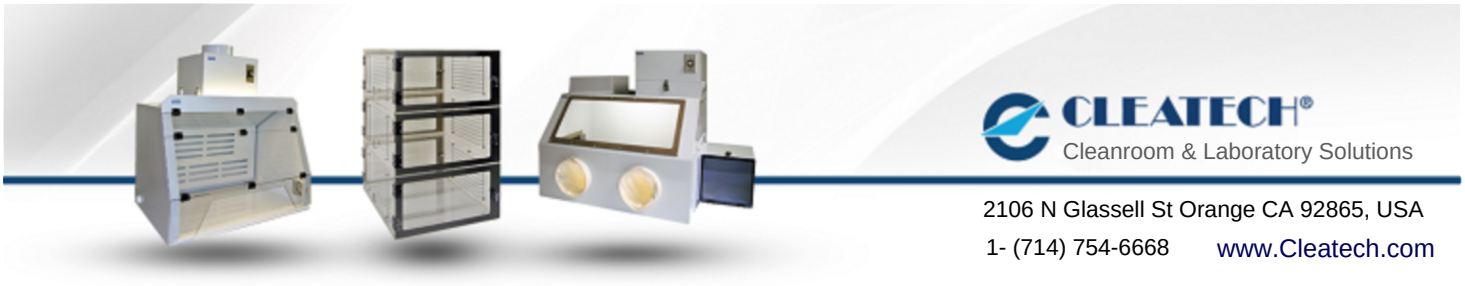
Quote Number:	47929			**Contact:**	Trenton O'Neal
Quote Date:	11/09/23	**Expires:**	12/09/23	**Lead-time:**	4 weeks
Customer:	NWUNIVERSITY			**Terms:**	PIA- ACH/ Wire Transfer
Salesman:	Janet			**Phone:**	328-357-5578
Ship Via:	LTL Freight			**FAX:**	

Quote does not include base cabinets

Item	Part Number Description	Quantity	Price
1	1100-9-G Ducted Exhaust Hoods Clear View, 72"Wx24"Dx25"H, Front sash, Walls and top panel Clear Static Dissipative PVC, Polypropylene Spill tray (Upgradable to 304 Stainless Steel inerior work plate Incl. Grounding Terminal, order part# A11-WS-SH48), (Optional Blower Module, 120VAC, Adjustable Speed, 480 CFM, order part# A11-FM-P120), (Choice of 6" and 8" Duct ports, to be added separetly), (Optional external mount Flourescent light, order part# A110LI-E)	1	$2,950.000 /EA
2	A11-DU-P6 6" OD Duct Port, Polypropylene for use in Exhaust hoods	2	$100.000 /EA
3	A11-FM-P120 Fan module, Polypropylene Housing 120VAC, Adjustable Speed, 480 CFM, (Not rated for acid and corrosive chemical)	2	$1,180.000 /EA
4	A11-LI-E72L LED light, 24W, External Mount, 120V , for 72"Width Hoods	1	$190.000 /EA
5	A11-UP-2 Set of two, Utility ports, 2" ID with cover installed on either sides of the fume hoods.	1	$120.000 /EA
6	A11-ST-P30H72 Stand with Caster for 72 inch For High Clearance Ducted Exhaust Hoods, Epoxy Powder Coated Steel, 30" Height Including Casters (Two out of Four Casters Lockable)	1	$980.000 /EA
	FOB: ORIGIN		
7	CRATING_S1100-60/72 Packing & Crating (Including Stand)	1	$410.000 /EA
8	SHIPPING Shipping Estimate (Shipping will be added unless customer provides shipping account)	1	$0.000 /EA
	Sales tax will be added to the final invoice unless Tax Exemption Certificate provided	***Total:***	***$7,210.00***

Report Generated: 11/10/2023 10:59:26 AM

Page 1 of 2



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Quotation

Quote Northwestern state university of Louisiana
To: 135 Sam sibley Dr, rn 112
Natchitoches, LA 71497
United States

Quote Revison:

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Ship Via:	LTL Freight			**FAX:**	

Quote does not include base cabinets

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	FOB: ORIGIN			
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Item	Part Number Description	Quantity	Price

By Janet Andrea Rivera
Cleatech LLC

Sales Quotation

*Quote Nbr	Creation Date	Due Date	Page
3300-1182-41	10/27/2023		1 of 1

Payment Terms	Delivery Terms
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Customer Reference	Sales Representative
RFQ 10/27/23	GIANLUCA LAPALOMBELLA

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Invitrogen Qubit Flex NGS Starter Kit, Excitation Wavelength: Blue LED (max 460?480 nm), Red LED (max 620?640 nm), Product Line: Qubit, For Use With: DNA Quantification, RNA Quantification, MicroRNA Quantification, Protein Quantification, Sample Volume: 1 to 20 uL
Vendor Catalog # Q45893
Hazardous Material
This item is being sold as 1 per each

MERCHANDISE TOTAL 6,854.10

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NORTHWESTERN STATE

Office of The Provost

November 13, 2023

Dear Committee Members:

I am writing to express my enthusiastic support for the proposed enhancements to the Kyser microbiology educational laboratory. In my current role, I have had the privilege of observing the invaluable contributions made by our biology department to excellence in both education and research.

Given the rapidly evolving nature of microbiology, having state-of-the-art facilities and equipment is crucial to facilitating cutting-edge research, experimentation, and analysis. The advantages of upgrading our microbiology lab are manifold. A well-equipped laboratory is indispensable for staying at the forefront of education and scientific discovery. By investing in these upgrades, we demonstrate our commitment to maintaining excellence in microbiological education and research.

We strive to provide students with the best possible education, ensuring access to cutting-edge technology and methodologies is imperative. The hands-on experience gained in a safe, well-equipped lab setting will undoubtedly better prepare our students for future careers in academia, industry, or healthcare.

As Provost and Vice President of Academic Affairs, I wholeheartedly endorse the proposed microbiology lab upgrades, as they align with our commitment to academic and scientific excellence. I am optimistic about the positive impact these upgrades will have on our faculty, students, and community.

Sincerely,

Greg Handel
Provost & Vice President of Academic Affairs
Dean of the Graduate School
Professor of Music Education

NORTHWESTERN STATE
COLLEGE of ARTS & SCIENCES

MEMORANDUM

Date: November 15, 2023

From: Francene J Lemoine
Dean, College of Arts and Sciences

To: Student Technology Fee Grant Committee

Re: Letter of Support for Mr. Trenton O'Neal's Grant Application

Student Technology Grant Committee

I am writing this letter to express my enthusiastic support for the proposed upgrade of the Kyser Hall microbiology and undergraduate research laboratories. As the Dean of the College of Arts and Sciences and a Professor of Biology, I understand the critical role that cutting-edge/state-of-the-art facilities and equipment play in advancing the research endeavors and, most importantly, education and career preparation of our students.

Microbiology is a rapidly evolving field and staying at the forefront of research requires state-of-the-art equipment and infrastructure. The proposed upgrades outlined in the project proposal demonstrate a clear commitment to providing students with the tools they need to conduct high-quality research, receive high-quality education, and develop industry-standard laboratory skills that will allow them to be competitive in the ever-changing field of microbiology.

I am confident that the upgrade of the microbiology and research laboratories aligns with our institution's commitment to excellence in research and education. I urge you to consider the significant impact this investment will have on the scientific community and our University's reputation in the academic world.

Thank you for your attention to this matter, and I look forward to witnessing the positive outcomes that will undoubtedly result from the upgraded microbiology lab.

Mr. O'Neal has my full support in the submission of this grant proposal. I trust that you will give him every consideration as he works diligently to improve the student experience in the Department of Biology and Microbiology within the School of STEM. I look forward to witnessing the positive outcomes that will undoubtedly result from the upgrade of these laboratory spaces. If you have any questions regarding my recommendation or support, please do not hesitate to contact me.

Phone: 318-357-4330 | Fax: 318-357-4255 | 128 Caspari Hall | Natchitoches, LA 71497