

1. This Proposal Involves: <input checked="" type="checkbox"/> One Institution <input type="checkbox"/> More Than One Institution		2. Enhancement Subprogram: <input type="checkbox"/> TRADITIONAL ENH Program (Includes all multidisciplinary proposals) <input checked="" type="checkbox"/> UNDERGRADUATE ENH Program					
3. This Proposal Is: <input checked="" type="checkbox"/> Primarily an Equipment Request <input type="checkbox"/> Not Primarily an Equipment Request							
4. Name(s) of Submitting Institution(s) of Higher Education Additional Institutions Grambling State University							
5. Address of Institution of Higher Education Department of Biological Sciences Campus Box 4211 Grambling State University 403 Main Street							
6. Title of Proposed Project Grambling, Louisiana 71245 ACQUISITION OF LABORATORY EQUIPMENT ITEMS TO ENHANCE TEACHING AND RESEARCH CAPABILITIES OF THE DEPARTMENT OF BIOLOGICAL SCIENCES							
7. First-Year Support Fund Money Requested \$116876		8. Second-Year Support Fund Money Requested (if applicable) \$0					
9. Proposed Duration 1 Year							
10. Category In Which Proposal Is Being Submitted <input checked="" type="checkbox"/> Biological Sciences <input type="checkbox"/> Engineering B (Industrial, Materials, Mechanical, etc.) <input type="checkbox"/> Humanities <input type="checkbox"/> Computer and Information Sciences <input type="checkbox"/> Social Sciences <input type="checkbox"/> Special Multidisciplinary (See Section III.B.2.c of the RFP.) NOTE: If you check this category, you must also check at least one other eligible discipline.)		11. Taxonomy Numbers: 0201 Anatomy, 0203 Biology, 0205 Botany, 0206 Cell and Molecular Biology, 0207 Ecology, 0208 Embryology, 0210 Genetics, 0212 Microbiology, 0217 Physiology					
12. This Proposal Is a: <input checked="" type="checkbox"/> New Request <input type="checkbox"/> Request for Continuation of a Previously-Funded Support Fund Project Previous contract number:							
By signing and submitting this proposal, the signators are certifying that: (1) the proposed project has not already been funded/is not currently being funded/has not been promised funding; (2) this proposal has been reviewed and approved by an Institutional Screening Committee; and (3) the institution and the proposed project are in compliance with all applicable Federal and State laws and regulations, including, but not limited to, the required certifications set forth in: (a) Grants for Research and Education in Science and Engineering, NSF Grant Proposals Guide (GPG), NSF 03-2, effective 10/1/02, and (b) 45CFR 620, Subpart F (Requirements for a Drug-Free Workplace).							
Name (type or print)		Dept./Telephone No.		Degree/Year		Signature	
Lead PI							
Campus Head or Authorized Institutional Representative		Dean		Authorized Fiscal Agent			
Name/Title/email: (type or print)		Name/Title/email: (type or print)		Name/Title/email: (type or print)			
Signature:		Signature:		Signature:			
Date:	Telephone Number:	Date:	Telephone Number:	Date:	Telephone Number:	Date:	Telephone Number:

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PERSONNEL PAGE

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Position in Contract Co- Principal Investigator				
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PERSONNEL PAGE

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ACQUISITION OF LABORATORY EQUIPMENT ITEMS TO ENHANCE TEACHING AND RESEARCH CAPABILITIES OF THE DEPARTMENT OF BIOLOGICAL SCIENCES

B. PROJECT SUMMARY

The Department of Biological Sciences at Grambling State University is requesting funding to procure equipment and materials needed to facilitate an on-going departmental initiative aimed at strengthening the biology program through enhancement of its teaching and research infrastructure and capabilities. Curriculum changes, the employment of two new faculty members interested in research, and the recent acquisition of some laboratory equipment funded by external sources, are a testament to the biology department's commitment to achieve the objective of this initiative. The funds requested in this enhancement grant will assist the department to build on the foundation laid by the afore-mentioned efforts. Laboratory equipment and materials to be purchased with the enhancement funds will afford us the ability to provide our students with improved laboratory experiences which will make them more competitive for admission to graduate programs in biomedical/health sciences or employment in the private sector, state or federal agencies. In a typical semester, the biology department offers 20 sections of freshman biology and 10 sections of upper level laboratory courses. Over 1,400 students/year enroll in the principles of biology and 6 upper level laboratory courses selected for equipment support through the enhancement grant. Since international and out-of state students account for 39% of enrollment at Grambling State University, the majority of the 1,400 students that will be impacted by the funding of this request, will likely be from the State of Louisiana. Biology graduates who stay back in Louisiana and become successful will serve as role models for their peers who will appreciate the delayed, but yet profound, benefits of good education. It should be noted that the opportunities we seek through this request cannot otherwise be funded through current departmental resources. Some of the equipment requested will serve the dual purpose of supporting teaching as well as facilitating faculty research efforts. The project's overall impact will be to assist the biology department in increasing its contribution to the scientific community by producing young African American biologists who are equipped with the technical expertise to pursue advanced degrees in biomedical sciences or seek rewarding careers in the current technology- driven economy.

C. NARRATIVE AND BIBLIOGRAPHY

1. The Current Situation

a. Institutional Description

Grambling State University, (GSU) is a comprehensive, historically black, public institution that offers a broad spectrum of undergraduate and graduate programs of study. It is fully accredited by Southern Association of Colleges and Schools (SACS), offering bachelor's degrees in 47 disciplines, Master's degrees in 11 areas, and a doctorate degree in Education. International and out-of-state students account for 39% of enrollment and females comprise 61% of student population. According to the Fall 2008 enrollment data, the current student population is 5,253. The mission of GSU is to prepare its graduates to compete and succeed in careers related to their programs of study, contribute to the advancement of knowledge, and lead productive lives as informed citizens in a democratic society. To accomplish this mission more successfully, GSU has been progressively phasing in higher admission standards with the goal of adopting selective admission criteria by 2010, in compliance with Louisiana Board of Regents mandate.

The Department of Biological Sciences is one of the largest departments in the College of Arts and Sciences with approximately 250 majors and 14 full time faculty members, nine of whom have terminal degrees in their teaching areas. Currently, the department does not offer any graduate program of study. In a typical semester, we offer about 20 sections of general biology and 10 sections of upper level biology courses. The data presented in Table 1 shows that in a typical academic year, over 1,400 students enroll in the specified biology laboratory courses. The increasing demand for biology courses puts a significant strain on the limited resources that support the laboratories. Despite these challenges, the department of biology has continued on with efforts to strengthen the biology program. Recent programmatic changes have resulted in a stronger academic curriculum in general biology. A new concentration area in Environmental Science was recently developed and is scheduled to be offered in Spring 2009. The recent employment of three new research oriented faculty will increase the opportunities for our majors to be involved in undergraduate basic research. The department is committed to providing a strong foundation in biological sciences, particularly for our science majors, by vigorously pursuing external funding sources to support acquisition of necessary laboratory equipment for our introductory as well as upper level courses. Recently, we were fortunate to receive funding from external sources that enabled us to initiate the effort to upgrade our laboratory resources. Through the proposed enhancement grant, the department of biological sciences seeks to build upon this foundation by acquiring additional new equipment items or accessories/materials that will complement existing resources.

b. Rationale for Project

Over the last five years, the Department of Biological Sciences has embarked on a mission to strengthen the biology program by implementing more rigorous academic curriculum and recruiting faculty that are committed to research. A renewed emphasis is being laid on improving student laboratory experiences as a vital part of student training. However, due to departmental budgetary constraints, it has been difficult to provide adequate, up to date equipment and materials necessary to provide the type of laboratory experiences that would prepare our students to be competitive for graduate programs in biomedical sciences. It is, therefore, necessary to seek external support for the accomplishment of our departmental initiative. Furthermore, although the newly recruited research faculty are seeking external funding to support their research interests, generation of research data through pilot studies will certainly improve their chances of getting funded. The equipment items and materials requested for selected upper level laboratory courses (Table 1) will serve a dual purpose of enhancing teaching and research. This will assist the department in improving its academic program, as well as facilitate the professional aspirations of its faculty.

Table 1. Enrollment in Selected Laboratory Courses during the 2007/2008 academic year

Course	Enrollment		Annual Enrollment
	Fall 2007	Spring 2008	
Biol. 105- Prin. of Biol. I (non-majors)	458	70	528
Biol. 106 Prin. of Biol. II (non-majors)	28	324	352
Biol. 115-Prin. of Biol. I (majors)	152	0	152
Biol. 116-Prin. of Biol. II (majors)	0	120	120
Biol. 202-Developmental Biol	37	29	66
Biol. 216-Environmental Biol.	30	0	30
Biol. 302-Genetics	35	16	51
Biol. 305-Anatomy & Physiology	58	30	88
Biol. 461-Cell & Molecular Biol. I	16	0	16
Biol. 465-Cell & Molecular Biol.II	0	22	22
Total	814	611	1425

c. Impact on Existing Resources

In an effort to upgrade the principles of biology laboratory courses, the Department of Biological Sciences recently invested in Vernier LabQuest Systems - a powerful interface for science education that will engage students in hands-on, inquiry based experiments using LabPro interfaces and associated sensors connected to desk top computers. Some specific items of equipment requested in the enhancement grant which will have direct impact on the existing resources for general biology courses include the 4 DigiVU CVM microscopes that can be integrated with the Vernier Systems; Digital Camera with microscope-adaptors, and binocular microscopes that will improve microscopy exercises; a remote audience response system which will be integrated into existing Microsoft power point presentations to more actively engage students in class presentations by allowing them submit responses to interactive questions using keypads; and anatomic models that will be invaluable in reinforcing learning objectives in specimen dissection exercises. Existing resources for upper level laboratory courses will also be greatly impacted by proposed acquisitions with the enhancement funds. For BIOL 302 (Genetics) laboratory, the department has a set up for fruitfly anesthetization and has also acquired four dissecting microscopes for examination and sorting of the progeny obtained from genetic crosses. A *Drosophila* incubator requested in this proposal will enhance the fruitfly station by ensuring that the flies are kept under optimal conditions to facilitate the generation of large numbers of progeny in a timely manner. Our Developmental biology (BIOL 202) laboratory will also benefit from the establishment of the *Drosophila* system. A laminar Flow hood requested will provide a work station to improve sterile in vitro methods utilized in our Cellular and Molecular Biology (BIOL 461, BIOL 465) laboratories.

2. The Enhancement Plan

a. Project Goals and Objectives

The main goal of this project is to strengthen teaching and research capabilities in the Department of Biological Sciences by upgrading existing equipment and/or procuring new equipment needed to provide meaningful laboratory experiences for our students. This goal will be achieved by implementing the following two objectives:

- Procure equipment and materials to support our general biology laboratory courses as well as enhance student laboratory experiences in upper level courses
- Acquire equipment and materials that can be utilized by faculty for research and instructional purposes.

b. Plan of the Proposed Project

The plan to implement the proposed project includes several components described below as activities. The faculty member to implement each activity is specified. Benchmarks that will indicate that progress is being made towards

accomplishing the stated objectives include (1) purchase requisitions for equipment/materials are processed by the PI according to established institutional policies by August, 2009; (2) some equipment items are received by Property Management by September 2009; (3) all items including the expensive ones that require bids, are received by October 2009; (4) all equipment are installed, students and faculty start utilizing the resources by November, 2009. The entire project should be completed by July 2010. Plans for evaluation of each activity will involve the Department Chair, who will serve as the PI of the proposed project, to require each faculty member participating in the enhancement project to include, in his/her annual report, an impact statement detailing how the new resources have enhanced student learning in their laboratory courses. The PI will compile and analyze the faculty reports, and also survey the students to reinforce the faculty assessment of project impact. The ultimate assessment of the success of this project will be an increase in the number of biology graduates who proceed to graduate studies, seek careers in biomedical research, and make significant contributions to the scientific community at the local, state or national level.

Activity one: Enhancement of Principles of Biology Laboratories.

Principles of biology laboratories (BIOL 105, 106, 115, 116) will use the Digital camera and the microscope-digital camera adaptor to enhance microscopy laboratory activities. The digital camera will be attached to a computer or a monitor for students to view cellular structures with improved clarity. An instructor can use the equipment to project slides while explaining various entities to a large number of students simultaneously. Other items needed are specimen collections and vertebrate skeletons which will be used as demonstration tools to reinforce learning objectives in the courses. Stereomicroscopes are also requested for specimen dissections. A DigiVu CVM microscope will be integrated with the existing Vernier LabQuest system to enhance students' laboratory experience. This activity will be implemented by Dr. Felix Ifeanyi, Professor/Head of the Department of Biological Sciences and the PI of the proposed project. He will be assisted by Ms. LaQuetta Anderson who serves as the coordinator of principles of biology laboratories, and Ms. Natalie Hendrix. Both instructors teach principles of biology courses, and will be instrumental in accomplishing this activity.

Activity two: Enhancement of Developmental Biology Laboratory.

The Developmental Biology (BIOL 202) laboratory is currently in the process of implementing new hands-on laboratory activities with the recent acquisition of an Inverted Microscope to be used for observing in vivo embryonic development of *Drosophila* embryos. The addition of a micromanipulator accessory will increase the usefulness of this microscope by facilitating microinjection of regular dyes to follow the linear fate of certain cells. Moreover, with the addition of the new equipment, micro operations on embryos can be taught, and students will eventually be trained to perform these procedures. The introduction of this technique will allow students the ability to see what happens to the embryos when particular cells are destroyed. A Physiology set up to measure in vivo response from *Drosophila* photoreceptors can be implemented with the acquisition of electrometer with probe, manual manipulator, micro-manipulator, 3-axis fine control to be attached to the manual manipulator, electrode holders, PZMIII binocular microscope, Data Acquisition system, desk computer, and other necessary accessories including an electrode puller. The equipment and accessories requested are absolutely necessary because we do not currently have any in vivo physiological experiments for our biology juniors and seniors taking Anatomy & Physiology courses. Moreover, the electrode puller will be a necessary component for the preparation of ultra small needles for embryo injection and cell manipulations in the developmental biology laboratory. The biology program will derive tremendous benefits from setting up the *Drosophila* system that will positively impact our developmental, genetics, and anatomy & physiology laboratories. This activity will be implemented by Dr. Hung-Tat Leung, Assistant Professor and Dr. Milford Greene, Associate Professor. Dr. Greene teaches Developmental Biology and Dr. Leung is currently teaching Genetics. Dr. Leung has extensive postdoctoral research experience working with the *Drosophila* system.

Activity three: Enhancement of Ecological and Environmental Biology Laboratories.

The Fundamentals of Ecology (BIOL 206) and the Environmental Biology (BIOL 216) laboratories are being redesigned to provide students with more relevant environmental activities that reflect current ecological and environmental changes in today's world. With the addition of an Acid Rain Videolab, the utilization of Multimedia can be incorporated into the environmental lessons. Students will gain experience in investigating the effects of acid rain on plants and soils, chart the path of acid rain from source to deposition, and estimate the contribution of automobiles to the acid rain problem. Bioassay activities can be incorporated in laboratory exercises by allowing students to study the effects of a common pollutant from farm fertilizer runoff water on a population of *Daphnia*. Students will learn an important lesson about the impact of pollution on agriculture. The addition of more relevant inquiry-based laboratories related to the hydrosphere, atmosphere and geosphere will be facilitated by the acquisition of various sensors including Xplorer GLX Temperature Sensors, Humidity/Temperature/Dew Point Sensors, and a variety of gas sensors. Enhancing the Ecology and Environmental biology laboratories will assist us in strengthening the newly developed Environmental science concentration area in the biology program. Dr. Dagne Hill, Associate Professor of Biology, will implement this activity.

Activity four: Enhancement of Anatomy and Physiology Laboratories.

The Anatomy and Physiology laboratories, BIOL 303 (non-majors) and BIOL 305 (majors) have been redesigned to better prepare students electing to pursue health related careers. A Digital Microscopy System is being requested. This system feeds microscope images into a computer via a USB connection. The image can be captured and saved on the computer as an image file. Video files of live organisms can be saved to the hard drive on the computer. Live images/video can also be projected on a screen or multimedia board using the LCD projector. This equipment could also be used to digitize microscope slides used in principles of biology, botany, histology, parasitology, and developmental biology laboratories. This particular microscope has an oil immersion objective lens and could therefore be used in the microbiology laboratory too. We have a shortage of quality microscopes for our upper level laboratories. The Digital Microscopy System will, therefore, have a broad positive impact on several laboratory courses. To further enhance the Anatomy and Physiology laboratories, there is also a need for additional human skeletal material. Some of the material we have is natural bones which are not in good shape. Our senior level Comparative Anatomy course (BIOL 419) also will benefit from skeletal materials. The purchase of dogfish, cat, pigeon, frog, snake, and bat skeletons would add significantly to the laboratory content in this course. In addition, the comparative brains set and the comparative hearts set, as well as the human brain mount should contribute to the overall learning experiences of students in this course. The human "mini" skeletons would be used primarily for our non-majors anatomy (BIOL 303) course. This would reduce "wear and tear" on our skeletal material used in the major's course. Dr. Ben Martin, Associate Professor of Biology, will implement this activity.

Activity five: Enhancement of Cell and Molecular Biology Laboratories.

We are requesting equipment to enhance our Cellular and Molecular Biology (BIOL 461 and BIOL 465) teaching laboratories. The requested equipment items will promote our students ability to competently use equipment that utilize cellular and molecular biology techniques. This equipment will further support research efforts by faculty members currently engaged in scholarly research who employ in vitro and molecular biology/biochemistry techniques. A UV/Visible light spectrophotometer will enable the quantification of ssDNA, dsDNA, RNA, oligonucleotide calculations, and protein analysis by Bradford, Lowry, Biuret, and direct-UV methods. The spectrophotometer features built-in RNA/DNA, oligonucleotide, protein, and optical density (OD) analysis software so that results can be obtained quickly, accurately, and efficiently. A Laminar Flow Hood will provide workstation to teach students proper sterile in vitro methods in culturing cells. The proposed unit is a self-contained multipurpose horizontal laminar flow workstation that can be placed on an existing table, open bench, or support stand. Workstation features HEPA filters that provide an ISO Class 5 (FED-STD-209E Class 100/M3.5) environment. The HEPA filters have a minimum efficiency of 99.99% at 0.3µm or larger. A perforated aluminum

diffuser screen protects the HEPA filter while maintaining uniform air velocity within the work area. A 30% ASHRAE washable prefilter is included to extend the life of the HEPA filter. A Tissue Culture incubator will be used to grow and maintain cell cultures in the teaching laboratory where contamination concerns and ease of cleaning are important factors. These low-maintenance incubators employ advanced air-jacketed temperature control technology to ensure an optimal and stable growing environment for cell and tissue cultures. Dr. Quincy Quick, Assistant Professor of Biology, will implement this activity.

Activity six: *Enhancement of Genetics Laboratories.*

For the Genetics laboratory (BIOL 302), we have a preliminary set up for establishing a *Drosophila* station. The set-up includes all of the necessary equipment for handling *Drosophila* except a *Drosophila* incubator to make sure the fruitflies are kept in an optimum condition to facilitate the generation of progeny in genetic crosses in a timely manner with large number of progeny for statistical analysis. Detailed justification for the request of accessories and materials needed to complete this set-up was included in the activity related to developmental biology laboratory. Dr. H.T. Leung and Dr. Milford Greene will be responsible for this activity.

c. Evidence of Potential to Achieve Recognized Eminence at the Regional, National, or International Level with Degree Offerings and/or Functions

The mission of GSU is to prepare its graduates to compete and succeed in careers related to their programs of study, contribute to the advancement of knowledge, and lead productive lives as informed citizens on a regional, national and international level. The Department of Biological Sciences strives to provide a strong academic program for intellectual development of the 250 majors and over 1,400 students that take the laboratory courses selected for the proposed enhancement. The majority of these students are Louisiana residents. Therefore, providing these students with solid background in the biological sciences will encourage them to seek opportunities for advanced studies leading to gainful employment opportunities in this state or region. The biology department has a record of utilizing resources funded by minority training programs such as Research Initiative for Scientific Enhancement (RISE), Minority Access to Research Careers (MARC), National Institutes of Mental Health Career Opportunities in Research (NIMH-CoR) and Bridge (all housed in the biology department) to provide additional learning experiences which help prepare students for advanced studies in the discipline. During the period 2002-2008, nine biology graduates enrolled in Ph.D. or M.S degree programs and 19 graduates enrolled in health/allied health degree programs. The majority of these graduates were participants in the sponsored programs which required participants to take more challenging elective courses, participate in summer research internships and present research work in national conferences. Success achieved with these programs can be replicated with the enhancement grant. Some of the faculty members that will be involved in this project have published in peer refereed, nationally and internationally recognized journals. Such professionally recognized journals include International Journal of Oncology, Journal of Neurosurgery, Experimental Oncology, Journal of Neuroscience, Neuron, Journal of Neurochemistry, and Developmental Neurobiology. Procurement of some of the equipment requested for the enhancement of the upper level classes will enable these faculty members to make more contributions to the scientific community. The overall impact of the project will elevate the department's program offerings to new levels locally, regionally, and perhaps internationally.

d. Impact on Curriculum and Instruction

The proposed project will allow faculty the ability to provide state-of-the art education and research exposure to over 1,400 students (Table 1) who annually enroll in the laboratory courses selected for this project. Indeed, the proposed project will give a tremendous boost to the on-going departmental initiative to strengthen the biology program through curriculum changes and the hiring of new, research oriented faculty who will benefit from the well equipped laboratories that will provide new research and teaching capabilities. The end result will be that the Department of Biology, through curriculum changes facilitated by enhanced laboratory training of student and

faculty, will be more competitive in contributing to the global scientific society by producing graduates, and retaining faculty who are familiar with, and can competently use modern technology in biological and biomedical sciences.

e. Impact on Quality of students

The proposed project will have a positive impact on the students' interest, appreciation, and understanding of the key learning objectives in the enhanced laboratory courses. We will be able to increase student's individual participation in laboratory experiments. Individual participation is one of the most vital components for developing individual critical and building up student's self confidence. The impact on our upperclassmen will be significant as we are adding more current research-type of experiments in developmental biology, genetics, and physiology. These laboratory experiences will allow students to develop basic research skills, prepare a research plan, design their own experiments, perform them and observe the outcome. These are essential elements for the intellectual growth that will vastly improve the quality of our students. Furthermore, a strong academic curriculum will help us in recruiting more academically talented students, especially in-state students. We would then be in a position to serve as a more effective pipeline to provide quality biology graduates for recruitment by the graduate programs at Louisiana State University, Louisiana Tech University, and other graduate programs in Louisiana and throughout the nation.

f. Impact on Faculty Development

This project will provide the biology faculty, especially the newly employed junior faculty who are interested in research, the opportunity to acquire some equipment that will serve a dual purpose of teaching and research. It is always challenging to start up new research laboratories without the benefit of seed money to fund pilot projects that could be developed into full fledged research topics that can attract external funding. Some of the equipments requested in this proposal will bridge that gap, and facilitate the professional development of the participating faculty. Faculty can conduct their research and develop them into teaching tools tailored to the needs of our students. The department will make it easier for the faculty to implement this project by providing additional funding for supplies. The department will also provide support, as allowed by operating budget, for junior faculty to attend workshops and short courses that will reinforce the gains made through this project.

g. Performance Measures

A "before and after" comparison of relevant student and faculty data will indicate whether this project was successful. Such data includes the number of students presenting research papers in conferences before and after project implementation; the number of students admitted to graduate and/or professional degree programs before and after the project; and the number and quality of faculty research publications and grant awards before and after the project was completed.

3. Equipment

a. Equipment Request

Equipment/Material	Price \$	Lab Class Application
5 PASPORT® Earth and Environmental Sciences Probeware Bundle, Standard	7,495.00	Fundamentals of Ecology laboratory BIOL 206 and Environmental Biology laboratory BIOL 216
4 LabQuest Environmental Science Deluxe Package	5,848.00	Fundamentals of Ecology laboratory BIOL 206 and Environmental Biology laboratory BIOL 216
5 Acid Rain Videolab	1,136.00	Fund. of Ecology lab BIOL 206 and BIOL 216 lab

Equipment/Material	Price \$	Lab Class Application
Acid Rain Videolab DVD	227.00	Fundamentals of Ecology laboratory BIOL 206 and Environmental Biology laboratory BIOL 216
5 WARD'S Agriculture and the Environment LC ₅₀ : How Much Is Too Much Nitrate? Lab Activity	420.00	Fundamentals of Ecology laboratory BIOL 206 and Environmental Biology laboratory BIOL 216
5 Mini Long wave UV Lamp, 4 W	158.00	Fundamentals of Ecology laboratory BIOL 206 and Environmental Biology laboratory BIOL 216
UV/Visible light spectrophotometer	4,282.00	Cellular and Molecular Biol. Labs BIOL 461, BIOL 465
Laminar Flow Hood	4,174.00	Cellular and Molecular Biol. Labs BIOL 461, BIOL 465
Laminar flow hood stand	881.00	Cellular and Molecular Biol. Labs BIOL 461, BIOL 465
UV light for lamina flow hood	747.00	Cellular and Molecular Biol. Labs BIOL 461, BIOL 465
Carbon Dioxide Tissue Culture incubator	5,246.00	Cellular and Molecular Biol. Labs BIOL 461, BIOL 465
One electrometer with probe	1,325.00	Anatomy and Physiology laboratories BIOL 305
Two manual manipulators	1,838.00	Anatomy and Physiology laboratories BIOL 305
Two micromanipulators	1,690.00	Anatomy and Physiology laboratories BIOL 305 Developmental Biology Laboratory BIOL 202
Two electrode holders	98.00	Anatomy and Physiology laboratories BIOL 305
One microscope PZMIII binocular	950.00	Anatomy and Physiology laboratories BIOL 305
One Data Acquisition system	1,695.00	Anatomy and Physiology laboratories BIOL 305
One Dell Inspiron 530 desktop computer & monitor	829.00	Anatomy and Physiol. labs BIOL 305
One steel base plate	132.00	Anatomy and Physiology laboratories BIOL 305
One Faraday Cage	399.00	Anatomy and Physiology laboratories BIOL 305
Three magnetic holding devices	594.00	Anatomy and Physiology laboratories BIOL 305 Developmental Biology Laboratory BIOL 202
One electrode puller	3,430.00	Anatomy and Physiology laboratories BIOL 305 Developmental Biology Laboratory BIOL 202
Accessories for the physiology set-up	296.00	Anatomy and Physiology laboratories BIOL 305
One Drosophila incubator	7,470.00	Genetics BIOL 302, Dev. Biol. Laboratory BIOL 202
2 Digital Microscopy systems, Model DC5-163	2,968.00	Anatomy & Physiol. Labs, BIOL 303, BIOL 305 Developmental Biology Laboratory BIOL202 Genetics laboratory BIOL 302
2 Dell Vostro Dual Core Mini Towers	1814.00	Anatomy & Physiol. Labs, BIOL 303, BIOL 305 Developmental Biology Laboratory BIOL202 Genetics laboratory BIOL 302

Equipment/Material	Price \$	Lab Class Application
2 InFocus LCD Projectors	898.00	Anatomy & Physiol. Labs, BIOL 303, BIOL 305 Developmental Biology Laboratory BIOL202 Genetics laboratory BIOL 302
4 Cat Skeleton, disarticulated in case	800.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
3 Human Skeleton, Plastic, disarticulated	2,835.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
12 Human Mini Skeleton, 33 inches, plastic	767.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
Poisonous snake skeleton, articulated, in case	170.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
2 Bat skeleton	414.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
Human Brain Plastomount	510.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305
Comparative Hearts Plastomount	197.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305 Comparative Vert. Anatomy Lab BIOL 419
2 Cat Skeleton, Articulated, with cover	900.00	Anatomy and Physiology laboratories, BIOL 303, BIOL 305, Comparative Vert. Anatomy Lab BIOL 419
2 Grass frog skeleton, plastomount	298.00	Anatomy and Physiol. labs, BIOL 303, BIOL 305
Dogfish Skeleton	262.00	Anatomy and Physiology laboratories, BIOL 303, BIOL 305, Comparative Vert. Anatomy Lab BIOL 419
Pigeon Skeleton	260.00	Anatomy and Physiol. labs, BIOL 303, BIOL 305
Comparative Brains Plastomount	231.00	Anatomy & Physiol. labs, BIOL 303, BIOL 305 Comparative Vert. Anatomy Lab BIOL 419
4 StereoPro Stereomicroscope	2,404.00	Principles of Biology laboratories BIOL 105, BIOL 106 Prin. of Biol. (Majors) lab BIOL115 and BIOL 116
4 DigiVu CVM Microscope	4,984.00	Principles of Biology laboratories BIOL 105, BIOL 106 Prin. of Biol. (Majors) lab BIOL115 and BIOL 116
5 Hanna All-in-One Educational pH Meters	1,045.00	Principles of Biology laboratories BIOL 105, BIOL 106 Prin. of Biol. (Majors) lab BIOL115 and BIOL 116
5 Carolina Electronic Balance	725.00	Principles of Biology laboratories BIOL 105, BIOL 106
4 Coelenterate Collection	541.00	Principles of Biology laboratories BIOL 105, BIOL 106
4 Echinoderm Collection	664.00	Principles of Biology laboratories BIOL 105, BIOL 106
4 Mollusk Collection	681.00	Principles of Biology laboratories BIOL 105, BIOL 106
4 Frog, Injected	635.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Forelimb Set	376.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Hind Limb Set	376.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Vertebrate Half-Skull Set	1,237.0	Principles of Biology laboratories BIOL 105, BIOL 106
5 Frog Skeleton	475.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Articulated Cat Skeleton with Cover	1,710.00	Principles of Biology laboratories BIOL 105, BIOL 106 Prin. of Biol. (Majors) lab BIOL115 and BIOL 116
5 Cell Set	736.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Plant Mitosis Set	1,083.00	Principles of Biology laboratories BIOL 105, BIOL 106

Equipment/Material	Price \$	Lab Class Application
5 Somso Animal Mitosis Set	3,444.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Bobbitt Human Muscular Torso	3,021.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Human Heart	790.00	Principles of Biology laboratories BIOL 105, BIOL 106
5-Somso Human Digestive Tract	7,505.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Human Organs of the Upper Abdomen	692.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Human Respiratory System	1,245.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 3B Human Male and Female Urinary System	2,494.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Human Endocrine Organs	613.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Denoyer-Geppert Giant Five-part Eyeball	1,322.00	Principles of Biology laboratories BIOL 105, BIOL 106
5 Denoyer-Geppert Giant Ear	1,344.00	Principles of Biology laboratories BIOL 105, BIOL 106
20 Wolfe ® ProZoom Binocular microscopes	12,020.00	Principle of Biology laboratories BIOL105, BIOL106, BIOL 115, BIOL 116, Developmental Biology laboratory BIOL 202 Introduction to Microbiology laboratory BIOL 304

b. Equipment on Hand for Project

Major equipment and resources currently available in the Department of Biological Sciences are listed below. Some of the requested equipments will complement what we currently have, and some accessories requested will allow more flexibility in utilizing existing resources. Although we currently have one carbon dioxide incubator, one additional incubator is requested to accommodate the BIOL 461 and 465 laboratories.

- Vernier LabQuest System with associated LabPro interfaces
- 50 Desktop computers dedicated to the Vernier LabQuest System
- TC 300 Thermocycler
- *Drosophila* System
- High Performance Liquid Chromatography System
- UV- laminar flow hood
- Carbon-dioxide tissue culture incubator for culturing and maintaining cell lines
- Chemical fume hood
- Microcentrifuge (1)
- LEICIA fluorescent microscope for immunofluorescence experiments
- Sony image capturing system
- Inverted microscopes (2)
- Binocular light microscopes (30)
- Electrophoresis equipment for running DNA and protein gels
- Thermocycler (Bio-Rad) for PCR experiments,
- BioRad 680 microplate reader for protein quantification and high throughput cell proliferation assays

- Freezers (-20, -70) and refrigerators
- VWR Scientific CO₂ Incubator
- BIO TEK EL 800 Colorimetric Universal Microplate Reader
- BIO-TEK FL 800 Fluorescent Microplate Reader
- Thermolyne Vari Mix Platform
- CBS 20 liter Cryocontainer
- Tuttnauer Water Purifier
- OHAUS Mettler Scale
- 2 Lab Net Hermle Centrifuges
- BIO-RAD Electrode Assembly
- ISC Bioexpress Thermocycler

c. Equipment Housing and Maintenance

All equipment items purchased through this grant will be housed in the Department of Biological Sciences located in Carver Hall. Specifically, all items designated for enhancing principles of biology courses will be housed in CH 54, CH55 and CH 58. Equipment items for the upper level classes will be housed in CH 15, CH 20, CH 127, CH 168, CH 174 and CH 181, or in faculty research laboratory as appropriate. The equipment items will be secured by installing additional deadbolt locks on the doors. Ms. Anderson who will be involved in implementing part of this project, serves as the Inventory Specialist for the Biology Department. She will be assigned the responsibility of monitoring all equipment purchased through this grant. Grambling State University will provide equipment maintenance.

4. Faculty and Staff Expertise

The faculty members that will be involved in this project have the qualification, knowledge and experience necessary to ensure successful implementation of the project. Their biographical sketches, included in this application, provide additional details of their experience and backgrounds.

1. Dr. Felix Ifeanyi

Dr. F. Ifeanyi, Professor and Head, Dept. of Biological Sciences will serve as the PI of the project. Dr. Ifeanyi has extensive experience with student/faculty training grants including the NIH funded Research Initiative for Scientific Enhancement (RISE) and the MBRS Support for Continuous Research Excellence (SCORE) programs for which he served as project director. He has also been a key project faculty in the Minority Access to Research Careers (MARC) and the Bridge to the Baccalaureate Degree programs at Grambling State University. His administrative and organizational skills will be instrumental to effective leadership of this project. He will be responsible for implementing the activity related to the enhancement of principles of biology laboratories with the assistance of Ms. LaQuetta Anderson and Ms. Natalie Hendrix. Dr. Ifeanyi will coordinate the implementation of all aspects of the project with the assistance of the Co-PIs.

2. Dr. Dagne Hill

Dr. Dagne Hill is an Associate Professor with a background in Environmental Science. She is an excellent instructor who is especially good in motivating students to do their best. Dr. Hill is the author of five research articles published in refereed journals including International Journal of Environmental Research Public Health, and has also made several conference presentations. She currently teaches Ecology and Environmental biology courses and will be instrumental in ensuring the success of the newly developed Environmental Science concentration area. Dr. Hill will implement the activity related to the enhancement of Environmental biology and ecology laboratory courses.

3. Dr. Hung-Tat Leung

Dr. Hung-Tat Leung is a new assistant professor trained as a neurobiologist. He had several years of postdoctoral research experience and was an associate scientist at Purdue University before he joined our department. For twelve years, Dr. Leung worked with *Drosophila* genetics and photoreceptor responses. He has published over fifteen papers, many of them in top journals such as *Neuron* and *Journal of neuroscience*. He will set up the *Drosophila* station to provide fruitflies as experimental subject for genetics, developmental biology and physiology studies. He will be in charge of building a physiology set up to measure the *in vivo* response of the fruitfly photoreceptors to light stimulus.

4. Dr. Quincy Quick

Dr. Quincy Quick is an Assistant Professor of cellular and molecular biology with a strong research background having completed two postdoctoral research training experiences in this field. His current research interest is the role that tubulin dynamics play in the resistance of glioblastomas to DNA damaging agents. Dr. Quick has published several refereed articles and abstracts in highly esteemed journals including *International Journal of Neurosurgery* and *Experimental Oncology*. He was the 2008 recipient of the American Society for Cell Biology Visiting Professor Award. He will implement the activity to enhance the Cellular and Molecular biology laboratories.

5. Dr. Ben Martin

Dr. Ben Martin is an Associate professor of Zoology who joined the Department of Biological Sciences after serving as the Dean for Academic Affairs at Alabama Southern Community College. Prior to this experience, Dr. Martin worked at LSU Alexandria where he served in various capacities as Department Chair, Dean, and finally the Chancellor for the campus. He teaches Anatomy and Physiology courses, and will be responsible for the activity related to enhancement of A&P laboratory courses.

6. Dr. Milford Greene

Dr. Milford Greene is an Associate Professor of Molecular and Evolutionary Biology who has extensive background in administration and grants management. He is also interested in research, having undertaken a certificate course in biotechnology at Georgetown University Medical School. He was also a Visiting Scientist at Naval Medical Research Center, Silver Springs, MD where he was involved in gene sequencing. At Lincoln University, PA and Morris Brown College, Dr. Greene served as the Director and Associate VP for Research and External Programs respectively. He is currently teaching Developmental Biology and will implement the enhancement related to the laboratory section of this course.

5. Economic and/or Cultural Development Impact

a. Relationship With Industrial/ Institutional Sponsors

Dissemination of the benefits derived from this project will involve a concerted effort on the part of the PI and the entire biology faculty to ensure that our students first consider career or graduate/ professional school opportunities in the state of Louisiana before any other options. Recruiters from graduate/professional programs at LSU Baton Rouge, LSU-HSC Shreveport, LSU Health Sciences Center, New Orleans, frequently visit our campus to recruit our students. Our students also seek opportunities for summer research experiences at these institutions. For example, the Louisiana Biomedical Research Network (LBRN) at LSU Baton Rouge sponsored four biology majors for summer research internship last summer. The laboratory training facilitated by the enhancement grant will enable us produce more students that will benefit from such opportunities. Establishing a pipeline to feed our graduate to state research institutions will be an excellent way of disseminating the benefits of this project. Besides, competently trained graduates will also be a good fit for job opportunities with our state government or industries.

b. Promotion of Economic Development and/or Cultural Resources

Students from Louisiana, through this grant, will receive a stronger educational training in biological sciences which will prepare them for advanced studies. The ultimate benefit is the improved chances for gainful, more rewarding careers in research, academia, state government or industry. Culturally, some of these students will be the first generation college graduates in their families. Their success will have a very positive impact on their families and friends. They will serve as role models to their peers who may, otherwise, seek the instant reward, but destructive life on the streets. The current budgetary constraints at the federal and state levels will negatively impact student enrollment in colleges. Since strong academic programs attract good students, strengthening our academic program through acquisition of necessary laboratory equipment will certainly promote the economic and cultural resources of this region of the state by helping us recruit and retain bright, promising biology graduates here in the State of Louisiana.

6. Additional Funding Sources

No additional funding sources are currently available for this project. The Department of Biological Sciences, however, will continue with the effort to identify funding sources to support the on-going initiative to strengthen its academic program.

D. PREVIOUS BOARD OF REGENTS SUPPORT

None of the faculty members including the PI, participating in this project has received prior funding from the Board of Regents. This is the first time the Biology department is applying for a Board of Regents grant.

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Ifeanyi, Felix. I.	Position Title Professor/Head Department of Biological Sciences Grambling State University		
EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Nigeria, Nsukka, Nigeria	DVM	1977	Veterinary Medicine
Kansas State University, Manhattan, Kansas	MS	1982	Microbiology
Kansas State University, Manhattan, Kansas	PhD	1988	Microbiology
Kansas State University, Manhattan, Kansas	Post Doc.	1988-1990	Lens Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.
DO NOT EXCEED TWO PAGES.

A. Positions and Honors

Positions and Employment

1991-1996 Assistant Professor, Grambling State University, Grambling, Louisiana
 1997 -2002 Associate Professor, Grambling State University, Grambling, Louisiana
 2002-2003 Professor of Microbiology, Grambling State University
 2003- Present Professor & Head, Dept. of Biological Sciences, Grambling State University

Other Experience and Professional Memberships

1977-1980 Research Officer, National Veterinary Research Institute, Vom, Nigeria
 1980-1983 Graduate Research Assistant, Dept. of Laboratory Medicine, College of Veterinary Medicine, Kansas State University
 1983-1988 Microbiology Instructor, Dept. of Laboratory Medicine, Kansas State University
 1988-1990 Post Doctoral Research Fellow of Wesley Foundation, Division of Biology Kansas State University (Lens Biology)
 1990-1991 Research Associate, Biomedical Research, Division of Biology, Kansas State University

Honors

Veterinary Honor Society of Phi-Zeta, Kansas State University
 American Society for Microbiology
 Association for Research in Vision and Ophthalmology
 Ophthalmological Associate, Research to Prevent Blindness

B. Peer reviewed publications (in chronological order)

1. Ifeanyi, F. and Takemoto, L. Differential Binding of Alpha Crystallin to Bovine Lens Membrane. Exp. Eye Res. 49: 143-147, 1989.
2. Ifeanyi, F. and Takemoto, L. Alpha Crystallin from Human Cataractous versus Normal Lenses: Change in Binding to Bovine Lens Membrane. Exp. Eye Res. 50: 113-116, 1990.
3. Ifeanyi, F. and Takemoto, L. Specificity of Alpha Crystallin Binding to Bovine Lens Membrane.

Curr. Eye Res. (9(3): 259-265, 1990.

4. Ifeanyi, F. and Takemoto, L. Interaction of Lens Crystallins with Lipid Vesicles. Exp. Eye Res. 52: 535-538, 1991.
5. Ifeanyi, F. and Takemoto, L. Characterization of the major Cyanogen Bromide Fragment of Alpha-A Crystallin. Curr. Eye Res. 10(6): 529-535, 1991.
6. Ifeanyi, F. and Takemoto, L. Involvement of the N-terminal Region in Alpha Crystallin-Lens Membrane Recognition. Exp. Eye Res. 53: 305-308, 1991.
7. Ifeanyi, F. and Bailie, W. Passive Protection of Mice with Antiserum to Neuraminidase from Pasteurella multocida serotype A:3. Vet. Res. Commun. 16:97-105, 1992.
8. Ifeanyi, F. Purification and Immunological Characterization of an Outer Membrane Protein of Pasteurella multocida serotype A:3. The Proceedings of Louisiana Acad. Of Science, Vol. 56, p. 31, 1994.
9. Ifeanyi, F. and Edu, G. Further Characterization of the Major Cyanogen Bromide Fragment of Alpha Crystallin. The Proceedings of the Louisiana Acad. Of Sciences, Vol. 57, p. 36, 1995.
10. Ifeanyi, F. and Heard, K. Generation of anti-BSA antibody using the Recombinant Phage Antibody System. The Proceedings of Louisiana Academy of Sciences, Vol. 59, p. 20, 1997.

Selected Conference Presentations

1. Edu, G., Ifeanyi, F. " Binding of Cyanogen Bromide Fragment of Alpha-A Crystallin to Bovine Lens Membrane". Annual Meeting of American Societies for Experimental Biology, Atlanta, GA. 1995.
2. Ifeanyi, F., Heard, K. "Generation of Anti-BSA antibody Using the Recombinant Phage Antibody System." Abstract of Louisiana Academy of Sciences. Thibodaux, LA 1997.
3. Solnica-Krezel, L. J. Topezewiski, B. Williams, and F. Ifeanyi. "Whole-mount in Situ Hybridization of Zebrafish Embryos." National Minority Res. Symposium. Washington, DC 2000.
4. Estes, J., N. LeFear and F. Ifeanyi. "Polyploidy in Artemisia", National Minority Res. Symposium. Washington, DC, 2000.
5. Downs, D., V. Smith, and F. Ifeanyi. "Iron Regulated Pyruvate Excretion in Salmonella typhimurium. National Minority Res. Symposium. Washington, DC, 2000.
6. Ifeanyi, F. "Neuraminidase: Avirulence Factor of Pasteurella multocida serotype A:3, Abstr. Of Ann. Meeting of South Central Branch, American Society for Microbiology, Little Rock, AR, 2000.
7. Ifeanyi, F. and P. G. Wilson. "Racemization of Aspartic-58 of Human Alpha Crystallin in Relation to Cataract Formation." Abst. of Ann. Biomedical Research Conference, Orlando, FL, 2001.

C. Research /Grant Support

Completed Research Support

5R25GM066714 Ifeanyi, F. (PI) 06/01/04-5/31/08 \$911,697

RISE Program at Grambling State University

The major goal of this project is to increase the competitiveness of underrepresented students in gaining admission to graduate schools and seeking careers in biomedical research.

2S06GM004531-10A1 Ifeanyi (PI) 09/01/99 -08/31/02 \$259,184

MBRS-SCORE Program at Grambling State University

The goal of this project is to increase the number of faculty at minority serving institutions that are engaged in biomedical research.

Sub project 1: Lens Membrane Recognition Site(s) of Alpha Crystallin in Relation to Human Cataractogenesis.

This research sub project was designed to determine alpha-A crystallin binding site(s) on MP 26 protein from cataractous versus normal human lens proteins.

Role: PI

Sub project 2: Recombinant Phage Antibodies as Immunoassay Probes for Lens Protein Modifications.

The goal of this project is determine if recombinant phage antibodies developed from known phage libraries can be used as probes to identify in-vivo modifications of lens proteins.

Role: PI

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Milford W. Greene	Position Title Associate Professor of Biological Sciences Grambling State University		
EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Morehouse College Wesleyan University Harvard University	B.S. Ph.D. M.P.H.	1962 1974 1978	Biology Biology Public Health

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.
 DO NOT EXCEED TWO PAGES.

A. Positions and Honors.

Grambling University LA – September, 2007 – Present
 Associate Professor of Biology (tenure track)
Lincoln University PA – September 2003 – May 31, 2007
 Director of Sponsored Programs
 Chief Pre-Medical Advisor
 Visiting Professor of Biology
 Principal Investigator, NASA MASTAP Grant
Morris Brown College – February 1998 – August 2003
 Associate Vice President for Sponsored Research
 Assistant Provost for Science and Associate Dean for Academic Programs
 Associate Professor of Biology
 Vice President and President of the Faculty Council, respectively (elected)
Morehouse College – April 1988 – May 1995
 Director of Admissions
 Director of Engineering, Architecture and Project NASA SPACE
 Adjunct Professor of Biology (taught two classes per semester)
Atlanta University Center, Inc. – February, 1987 – March, 1988
 Director, Dual Degree Engineering Program - a ten-member consortium of colleges and universities.
Spelman College – September 1985 – May 1987
 Associate Professor of Health Sciences
 Director of the Health Sciences Program
 Visiting Professor of Health Sciences (September, 1987 - May, 1996, part-time)
Mercer University Medical School – June 1984 – June 1985

Associate Dean
Associate Professor, Community Medicine and Basic Science
Cornell University – January 1983 – June 1984
Associate Dean for Admissions and Financial Aid
Morehouse School of Medicine – June 1979 – January 1983
Assistant Dean for Admissions and Student Affairs
Chairman, Committee on Admissions
Assistant Professor of Community Medicine
University of Massachusetts Medical School – June 1974 – June 1979
Instructor in Biochemistry and Community Medicine
Assistant Dean and Director of Minority Student Affairs

B. Selected peer-reviewed publications (in chronological order).

Greene, Milford Wesley, Ph.D., “The Role of DNA Ligase In A DNA – Membrane”
Fraction Extracted From *Diplococcus pneumoniae*,” Dissertation Abstracts International 35:
November 4, 1974.

Greene, Milford and William Firshein, “Role of Deoxyribonucleic Acid Ligase in a
Deoxyribonucleic Acid Membrane Fraction Extracted from Pneumococci,” J. Bacteriol., 126,
No. 2: pp. 777-784, May, 1976.

Blumenthal, Daniel and Milford Greene, “Air Pollution” in Environmental Health
Springer Publications (New York), 1985.

C. Research Support.

PI/CoPI

U.S. Public Health Service Traineeship 1971

N.I.H. Traineeship, (Marine Biological Laboratories), Woods Hole, MA 1972

N.I.H. General Research Support, \$10K 1974

Massachusetts State Record Support, \$5K 1974

Fellow, National Cancer Institute, NIH (declined) 1975

Grant, State of Massachusetts, Summer Enrichment Program, \$25K 1976

Grant, Robert Wood Johnson Foundation (NFME)) UMMS-SEP, \$6K 1979

Grant, DHEW, #2 D18 MB 001 16 – 9Acad. Support, \$484,178 1981

Research Grant, Joint Board of Family Practice, Atlanta, GA, \$6K 1985

Training Grant, DHHS, #3 D8 MB 00157 A, \$150K 1985

Training Grant, NASA, #NGT – 90025, \$8 million, 1988-1996

Faculty Fellow, American Association of Engineering Education, 2001

Training Grant, NASA, \$338,514, 2004

Training Grant, NSF/LEQS-LAMP-Phase III Contract \$400,000, 2005-10

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Hill, Dagne D.	Position Title Associate Professor Department of Biological Sciences Grambling State University		
EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Grambling State University Grambling State University Jackson State University	B.S. M.A.T. Ph.D.	1980 1987 2004	Biology Natural Science Education/Certification Environmental Science

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.
 DO NOT EXCEED TWO PAGES.

A. Positions and Honors

Positions and Employment

1992-1999	Instructor of Biology, Grambling State University, Grambling, Louisiana
1999-2005	Assistant Professor of Biology, Grambling State University, Grambling, Louisiana
2005-Present	Associate Professor of Biology, Grambling State University, Grambling, Louisiana

Other Experience and Professional Memberships

1984-1985	Instructor of Biology, Southern University, Shreveport, Louisiana
1987-1992	Science Teacher (NTE Certification), Broadmoor Middle Laboratory School, Caddo Parish School Board, Shreveport, Louisiana Research Associate, Louisiana State University Agriculture Center, Hill Farm Research Station, Mastitis Laboratory, Homer, Louisiana

Honors

Southern Regional Education Board (SREB) Fellowship, 1998-present (Lifetime membership) Beta Kappa Chi Scientific Honor Society, 1999 Alpha Epsilon Lambda National Honor Society, 2004 Who's Who Among Students In American Universities and Colleges, 2004

B. Peer reviewed publications (in chronological order)

1. Hill, D., W.E. Owens, and P.B. Tchounwou. 2005. Comparative Assessment of the Physico-Chemical and Bacteriological Qualities of Selected Streams in Louisiana. *Int. J. Environ. Res. Public Health*. 2(1), 94-100.
2. Hill, D., W.E. Owens, and P.B. Tchounwou. 2005. Prevalence of Selected Bacterial Infections Associated with the Use of Animal Wastes in Louisiana. *Int. J. Environ. Res. Public Health*. 2(1), 84-93.
3. Hill, D., W.E. Owens, and P.B. Tchounwou. 2005. Impact of Animal Wastes Application on Runoff Water Quality in Field Experimental Plots. *Int. J. Environ. Res. Public Health*. 2(2), 314-321.
4. Hill, D., W.E. Owens, and P.B. Tchounwou. 2006. Prevalence of *Escherichia coli* O157:H7 Bacterial Infections Associated with the Use of Animal Wastes in Louisiana for the Period 1996-2004” *Int. J. Environ. Res. Public Health*. 3(1), 1, 104-110.
5. Hill, D., W.E. Owens, and P.B. Tchounwou. 2006. The Impact of Rainfall on Fecal Coliform Bacteria in Bayou Dorcheat (North Louisiana). *Int. J. Environ. Res. Public Health*. 3(1), 111-114.

Conference Presentations

1. Hill, D., W.E. Owens, and P.B. Tchounwou. “Comparative Assessment of the Physico-Chemical and Bacteriological Qualities of Selected Streams in Louisiana”. First International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, 2004
2. Hill, D., W.E. Owens, and P.B. Tchounwou. “Prevalence of Selected Bacterial Infections Associated with the Use of Animal Wastes in Louisiana”. First International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, 2004
3. Hill, D., W.E. Owens, and P.B. Tchounwou. “Impact of Animal Wastes Application on Runoff Water Quality in Field Experimental Plots”. First International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, 2004

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Hung-Tat Tony <u>Leung</u>	Position Title Assistant Professor, Cell Physiology, Grambling State University		
EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Southern California, CA, USA	B. Sc.	1981-1984	Psychobiology
University of Southern California, CA, USA	Ph. D	1984-1990	Neurobiology

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.
 DO NOT EXCEED TWO PAGES.

- A. Positions and Honors.** List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

Position and Employment

1990-1992 Manager, Kingsfine Industrial Ltd., Hong Kong,
 1993-1996 Teacher, Biology/Mathematics, Buddhist Wai Yan Memorial College, Hong Kong,
 1996-2003 Postdoc., Electrophysiology/Genetics, Purdue University, Indiana,
 2003-2005 Assistant Research Scientist, Electrophysiology/Genetics Purdue University, Indiana
 2005-2008 Associate Research Scientist, Electrophysiology/Genetics, Purdue University, Indiana
 2008- Assistant Professor, Grambling State University, Grambling, Louisiana

Other experience and Professional memberships

July 2003 Invited by the Journal of Neuroscience to review a manuscript
 April 2005 Invited by the Journal of Neuroscience to review a manuscript
 1997-2008 Served as a mentor to seven undergraduate, six graduate students, and four postdocs
 2006 Member, Society for Neuroscience

Honor

Summer 1986 Scholarship, Patch-clamp techniques course, Stanford University

- B. Selected peer-reviewed publications (in chronological order).** Do not include publications submitted or in preparation. For publicly available citations, URLs or PMC submission identification numbers may accompany the full reference; copies of publicly available publications are not accepted as appendix material.

- 1) Byerly L, Leung H-T, and Yazejian B. Cellular control of calcium currents. Biomed. Res. 1988; 9 (suppl. 2): 1-9.
- 2) Byerly L, and Leung H-T. Ionic currents of *Drosophila* neurons in embryonic cultures. J. Neurosci. 1988; 8: 4379-4393.

- 3) Leung H-T, Branton D, Phillips H, Jan L, and Byerly L. Spider toxins selectively block calcium currents in *Drosophila*. *Neuron* 1989; 3: 767-773.
- 4) Leung H-T, and Byerly L. Single channel calcium currents of *Drosophila* neurons. *J. Neurosci.* 1991; 11: 3047-3059.
- 5) Li C, Geng C, Leung H-T, Hong Y-S, Strong LL, Schneuwly S, and Pak WL. INAF, a protein required for transient receptor potential Ca^{2+} channel function. *PNAS (USA)* 1999; 96: 13474-13479.
- 6) Leung H-T, Geng C, and Pak WL. Phenotypes of *trpl* mutants and interactions between the transient receptor potential (TRP) and TRP-like channels in *Drosophila*. *J. Neurosci.* 2000; 20: 6797-6803.
- 7) Gengs C, Leung H-T, Skingsley DR, Iovchev MI, Yin Z, Semenov EP, Burg MG, Hardie R and Pak WL. The target of *Drosophila* photoreceptor synaptic transmission is a histamine-gated chloride channel encoded by *ort (hclA)*. *J. Biol. Chem.* 2002; 277: 42113-42120.
- 8) Pak WL and Leung H-T. Genetic approaches to visual transduction in *Drosophila melanogaster*. *Receptors Channels* 2003; 9: 149-167.
- 9) Ben-Shahar Y, Leung H-T, Pak WL, Sokolowski MB, and Robinson GE. cGMP-dependent changes in phototaxis: a possible role for the foraging gene in honey bee division of labor. *J. Exp Biol.* 2003; 206: 2507-2515.
- 10) Yoon J., Leung H-T, Lee S, Geng C, Kim Y, Baek K, and Pak WL. Specific molecular alterations in the *norpA*-encoded phospholipase C of *Drosophila* and their effects on electrophysiological responses *in vivo*. *J Neurochem.* 2004; 89: 998-1008.
- 11) Leung H-T, An L, Tseng-Crank J, Kim E, Harness EL, Zhou Y, Kitamoto J, Li G, Doerge RW, and Pak WL. Phototransduction in *Drosophila*: Use of DNA microarrays to clone genes identified by electroretinographic defects. In S. Fliesler and O. Kisselev (eds.) *Signal Transduction in the Retina*. CRC Methods in Signal Transduction Series, CRC Press. 2007 (Invited review)
- 12) Lee S, Leung H-T, Kim E, Jang J, Lee E, Baek K, Pak WL, Yoon J. Functions of the *porin*-encoded mitochondrial voltage-dependent anion channel protein in *Drosophila melanogaster* phototransduction. *Developmental Neurobiology* 2007; 67(11):1533-45.
- 13) Wang N, Leung H-T, Pak WL, Carl YT, Wadzinski BE, and Shieh B-H. Role of Protein Phosphatase 2A in regulating the visual signaling in *Drosophila*. *J. Neurosci.* 2008; Feb 6;28(6):1444-51.
- 14) Long AA, Kim E, Leung H-T, Woodruff III E, An L, Doerge RW, Pak WL, and Broadie K. The Presynaptic Calcium Trigger Driving Vesicle Exocytosis and Calcium-Dependent Facilitation Requires the Fuseless Protein., *J. Neurosci.* 2008; Apr 2;28(14):3668-82.
- 15) Leung H-T, Tseng-Crank J, Kim E, Mahapatra C, Shino S, Zhou Y, An L, Doerge RW, and Pak W L. DAG lipase activity is necessary for TRP channel regulation in *Drosophila* photoreceptors. *Neuron* 2008; Jun 26;58(6):884-96

C. Research Support. List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. Do not list award amounts or percent effort in projects.

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Martin, Benjamin F., Jr.	Position Title Associate Professor of Biology, Grambling State University, Grambling, LA.
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EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Louisiana State University, Baton Rouge, LA	Ph.D.	1975	Botany with Zoology
McNeese State University, Lake Charles, LA.	M.S.	1970	minor
McNeese State University, Lake Charles, LA.	B.S.	1968	Biology
			Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.
DO NOT EXCEED TWO PAGES.

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors, grants and fellowships. Include present membership on any Federal Government public advisory committee.

August, 2003 – Present: Associate Professor of Biology, Grambling State University, Grambling, LA.

June, 2007 – Present: Adjunct Instructor, Southern Union State Community College, Wadley, Alabama.

August, 2005 – December, 2005: Adjunct Instructor, Louisiana Delta Community College, Monroe, LA.

August, 2000 – July, 2003: Dean of Academic Affairs, Alabama Southern Community College, Monroeville, AL.

August, 1993 - July, 2000: Instructor of Biology, Alabama Southern Community College, Monroeville, AL.

May 20, 1989 - August, 1993: Professor of Biology and Chancellor, Louisiana State University at Alexandria, Alexandria, LA. Awarded title of “Chancellor Emeritus” by the LSU Board of Supervisors upon retirement.

January 1, 1985 - May, 1989: Professor of Biology and Dean of Academic Affairs, Louisiana State University at Alexandria, Alexandria, LA.

June, 1979 - December, 1984: Professor of Biology and Head, Division of Sciences, Louisiana State University at Alexandria, Alexandria, LA.

August, 1977 - May, 1979: Associate Professor of Biology, Louisiana State University at Alexandria, Alexandria, LA.

August, 1973 - August, 1977: Assistant Professor of Biology, Louisiana State University at Alexandria, Alexandria, LA.

January, 1972 - August, 1973: Graduate teaching assistant (Ph.D. program), Louisiana State University, Baton Rouge, LA.

September, 1968 - May, 1970: Graduate teaching assistant, McNeese State University, Lake Charles, LA.

B. Selected peer-reviewed publications (in chronological order). List publications in the following categories:

- a. Peer-reviewed articles (include articles in submission)
- b. Non peer-reviewed articles such as reviews and book chapters
- c. Abstracts within the last two years

Martin, Ben F. and Shirley C. Tucker. Developmental Studies in Smilax. I. Organography and the Shoot Apex. American Journal of Botany. 72(1):66-74, January, 1985.

Allen, Charles M., Mary G. Curry, and Ben F. Martin. A Vascular Flora of St. Helena and West Feliciana Parishes, Louisiana. University of Southwestern Louisiana Research Series No. 39. September, 1975. 80 pp.

Presentations

North, Linda, Ross, Brandt, and Martin, Ben F. Presentation on integrating technology into the curriculum at Alabama Southern. Presented at the Teaching and Learning Symposium in Mobile, AL, March, 2000.

Johnson, John A., Woodall, Terry, Ligon, Anderson, and Martin, Ben F. Presentation on learning styles and their integration into the curriculum at Alabama Southern. Presented to Teaching and Learning Symposium in Birmingham, Alabama, 1998.

Martin, Ben F. Effects of Sewage Pollution on Recreational Lakes. Presented at Annual Educational Conference of the Louisiana Environmental Health Association, January, 1986.

Martin, Ben F. and S. C. Tucker. Shoot Tip Abortion in Smilax. (Abstract of paper presented at annual meeting of the Association of Southeastern Biologists in Memphis, Tennessee) ASB Bulletin, Vol. 31, No.2, April, 1984

Hayden F. G. and B. F. Martin. A Survey of the Vascular Plants along the Wild Azalea Trail. (Abstract of paper presented at annual meeting of Louisiana Academy of Sciences) Proc. Louisiana Academy of Sciences, Vol. XL, 1977.

Martin, Ben F. and S. C. Tucker. Interpretation of the Tendril Bearing Leaf of Smilax. Paper presented at 25th annual meeting of Botanical Society of America in Corvallis, Oregon, August, 1975.

Martin, Ben F. and S. C. Tucker. Procambial Development in Smilax. (Abstract of paper presented at annual meeting of Louisiana Academy of Sciences) Proc. Louisiana Academy of Sciences, XXXVIII, 1975, p. 122.

Martin, Ben F. and S. C. Tucker. Developmental Studies in Smilax. (Abstract of paper presented at annual meeting of the Botanical Society of America at Tempe, Arizona) Amer. Jour. Bot., Vol. 61 (no. 5, supplement), May-June, 1974, p. 8.

Martin, Ben F. Leaf and Tendril Development in Smilax. (Abstract of paper presented at annual meeting of the Association of Southeastern Biologists in Bowling Green, Kentucky). ASB Bulletin, Vol. 20(2), April, 1973, p. 67.

C. Research Support. List current, completed and pending research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. List award amounts and percent effort in projects.

BIOGRAPHICAL SKETCH

Provide the following information for the project director, co-project director, and other key personnel/consultants. Begin with the principal investigator/program director. Photocopy this page for each person.

Name Quick, Quincy, Antoine	Position Title Assistant Professor Cell And Molecular Biology Grambling State University
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EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
New Mexico State University, New Mexico	Ph.D.	2001	Biology
Umass Medical School, Massachusetts	Postdoc	1/2002-5/2003	Biochem/Pharmacol
Medical College Of Virginia, Virginia	Postdoc	5/2003-2/2006	Pharmacol/Toxicol
Univ Of Toronto, Canada	Postdoc	6/2006-8/2006	Radiation/Biophysic

RESEARCH AND PROFESSIONAL EXPERIENCE: Starting with present position, list, in reverse chronological order, previous relevant employment, experience, and honors. Key personnel includes the principal investigator and any other individuals who participate in the development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in reverse chronological order, the titles, all authors, and complete references to pertinent publications during the past five years and to representative earlier publications pertinent to this application.

DO NOT EXCEED TWO PAGES.

A. Positions and Honors

Positions and Employment

8/1996-6/1997	Earth Science and Chemistry Teacher, McDonough High School, Waldorf, MD
1/2002-5/2003	Postdoctoral Fellow, University of Massachusetts Medical School, Worcester, MA Department of Molecular Pharmacology and Biochemistry
5/2003-2/2006	Postdoctoral Fellow, Medical College of Virginia, Richmond, VA Department of Pharmacology and Toxicology
6/2006-8/2006	Postdoctoral Fellow, University of Toronto, Sunnybrook Hospital, Toronto, ON Department of Radiation and Biophysics
8/2006-present	Assistant Professor of Cell and Molecular Biology, Grambling State University Department of Biological Sciences Grambling, LA
1/2008-present	Adjunct Graduate Assistant Professor of Biology, Louisiana Tech University, Department of Biological Sciences, Ruston, LA
6/2008-8/2008	Visiting Professor, Louisiana State University Health Sciences Center Department of Anatomy and Cellular Biology, Shreveport, LA

B. Research Experience

5/2003-10/2005	Studied radiosensitization and senescence arrest in glioblastomas Medical College of Virginia, Richmond, VA Massey Cancer Center/Dept of Pharmacology and Toxicology Postdoctoral Fellow Postdoctoral advisor: Dr. David Gewirtz
5/2006-8/2006	Studied the effects of radiation on the central nervous system University of Toronto, Sunnybrook Hospital, Toronto, ON Department of Radiation and Biophysics Postdoctoral Fellow Postdoctoral advisor: Dr. Shun Wong
8/2006-present	Investigating the role tubulin dynamics play in the resistance of glioblastomas to DNA damaging agents

Grambling State University, Grambling, LA
 Department of Biological Sciences
 Principal Investigator: Dr. Quincy Quick
 6/2008-8/2008 Examined the role of α -actinin isoforms (1 and 4) in the motility of glioblastoma cells
 Grambling State University, Grambling, LA; Louisiana State University Health Sciences
 Center, Shreveport, LA
 Department of Biological Sciences
 Department of Anatomy and Cellular Biology
 Principal Investigator: Dr. Omar Skalli LSU-HSC
 Co-Principal Investigator: Dr. Quincy Quick GSU

C. Grantsmanship

2008 American Society for Cell Biology Visiting Professor Award (\$17,000)

D. Selected peer-reviewed publication (in chronological order)

1. Serrano EE, Trujillo-Provencio C, Sultemeier DR, Bullock WM, **Quick QA**. Identification of genes expressed in the *Xenopus* inner ear. *Cell Mol Biol (Noisy-le-grand)*. 2001 Nov;47(7):1229-39.
2. **Quick, Q.A.** African Americans in biomedical sciences: new solutions to old problems. *Black Issues in Higher Education*. 2002. BI Forum.
3. **Quick, Q.A.** and Serrano, E.E. Inner ear formation during the early larval development of *Xenopus laevis*. *Dev Dyn*. 2005 Nov;234(3):791-801.
4. **Quick, QA** and Gewirtz, DA Enhancement of radiation sensitivity, delay of proliferative recovery after radiation and abrogation of MAPK (p44/42) signaling by imatinib in glioblastoma cells. *Int J Oncol*. 2006 Aug;29(2):407-12.
5. **Quick, QA** and Gewirtz, DA An accelerated senescence response to radiation in wild-type p53 glioblastoma multiforme cells. *J Neurosurg*. 2006 Jul;105(1):111-8.
6. **Quick, QA** and Serrano, EE Cell proliferation during the early compartmentalization of the *Xenopus laevis* inner ear. *Int J Dev Biol*. 2007, 51 (3): 201-9
7. **Quick, QA** Epothilone B induces cell death in glioblastoma cells via down-regulation of survivin. *Experimental Oncology*. In Press.

Scientific Abstracts

Cicero, S.A., Lopez-Anaya, V.L., **Quick, Q.A.**, Doyon, W.M., and Serrano, E.E. (1999). Developmental innervation patterns and morphology of the utricle in *Xenopus laevis*. *Association for Research in Otolaryngology* Abst.22:759

Quick, Q.A., and Serrano, E.E. (1999). Formation of the sensory epithelium of the inner ear during *Xenopus laevis* development.

Society for Neuroscience. Abst.Vol.25:297.9

Serrano, E.E. and **Quick, Q.A.** (2000). Confocal laser scanning microscopy of *Xenopus* inner ear organs during larval development.

Society for Developmental Biology.

Q.A. Quick and Serrano, E.E. (2000). Cell proliferation during inner ear development in *Xenopus laevis*. Society for Neuroscience.

Quick, Q.A. and Gewirtz, D.A. (2004) Senescence arrest and lack of apoptosis as elements contributing to radioresistance in glioblastoma cells.

American Association for Cancer Research

Quick, Q. A. (2008) Epothilone B induces glioblastoma cell death via survivin down regulation and tubulin redistribution

American Association for Cancer Research

E. Honors / Awards

1991-1994	Bonner Scholar, Ferrum College
1999-2001	NASA Space Grant Consortium Fellow, New Mexico State University
2008	American Association for Cancer Research (MICR) Minority Serving Institutions Faculty Scholar in Cancer Research Award Recipient
2008	American Society for Cell Biology visiting professor Award

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Felix Ifeanyi

Status of Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title: 5R25GM066714-04/RISE Program at Grambling State University

Source of Support: National Institutes of Health (NIH)

Award Amount (or Annual Rate): \$ 153,032 Period Covered: 06/01/08 - 05/31/09

Location of Activity: Dept. of Biological Sciences, Grambling State University

Person-Months or % of Effort Committed to the Project: 20% Cal Yr ☒ Acad. ☒ Summer

Status of Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title: RISE Program at Grambling State University

Source of Support: National Institutes of Health

Award Amount (or Annual Rate): \$ 1,306,714 Period Covered: 06/01/09 - 5/31/2013

Location of Activity: Department of Biological Sciences, Grambling State University

Person-Months or % of Effort Committed to the Project: 20% Cal Yr ☒ Acad. ☒ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: _____ Cal Yr _____ Acad. _____ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: _____ Cal Yr _____ Acad. _____ Summer

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Milford Greene does not have current or pending support

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Dagne Hill does not have current or pending support

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Hung-Tut Leung does not have current or pending support

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Ben Martin does not have current or pending support

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ _____ Period Covered: _____

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

CURRENT AND PENDING SUPPORT

(From ALL sources, including Board of Regents Support Fund)

The following information MUST be provided for each investigator and other senior personnel. Use additional sheets as necessary.

NAME OF INVESTIGATOR: Dr. Quincy Quick

Status of Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title: The role of α actinin in glioma cell migration.

Source of Support: American Society for Cell Biology

Award Amount (or Annual Rate): \$17,500.00 Period Covered: 06/08-12/08

Location of Activity: Grambling State University/LSU Health Sciences Center

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☒ Acad. ☒ Summer

Status of Support: ☐ Current ☐ Pending ☒ Submission Planned in Near Future

Contract Number/Proposal Title: The role α actinin in the development and progression of glimas.

Source of Support: National Institutes of Health

Award Amount (or Annual Rate): \$150,000 Period Covered: 09/09 - 09/11

Location of Activity: Grambling State University

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☒ Acad. ☒ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ Period Covered:

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

Status of Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future

Contract Number/Proposal Title:

Source of Support:

Award Amount (or Annual Rate): \$ Period Covered:

Location of Activity:

Person-Months or % of Effort Committed to the Project: ☐ Cal Yr ☐ Acad. ☐ Summer

**BOARD OF REGENTS SUPPORT FUND
TRADITIONAL AND UNDERGRADUATE ENHANCEMENT, FY 2008-09**

Budget Pages

Year 1:

	Support Fund Money Requested	Institutional Match ¹	Private/Other Match ²
A. Equipment ³	\$77991	\$	\$
B. Software	\$	\$	\$
C. Supplies	\$38885	\$	\$
D. Shipping/handling	\$	\$	\$
E. Installation	\$	\$	\$
F. Personnel training	\$	\$6352 (in-kind)	\$
G. Other	\$	\$	\$
H. Indirect costs	Not allowed	\$	\$
I. Maintenance	Strongly discouraged	\$	\$
J. Total costs (A-I)	\$116876	\$6352	\$0

Year 2(Only if the proposed duration is 2 years):

	Support Fund Money Requested	Institutional Match ¹	Private/Other Match ²
A. Equipment ³	\$	\$	\$
B. Software	\$	\$	\$
C. Supplies	\$	\$	\$
D. Shipping/handling	\$	\$	\$
E. Installation	\$	\$	\$
F. Personnel training	\$	\$	\$
G. Other	\$	\$	\$
H. Indirect costs	Not allowed	\$	\$
I. Maintenance	Strongly discouraged	\$	\$
J. Total costs (A-I)	\$0	\$0	\$0

1 Stipulate whether in-cash or in-kind. The Board strongly encourages the sharing of costs for proposed projects. Applicants and institutional officials should note, however, that the employing institution will be required to honor the commitments made in the original proposal before any awards are made. Discounts for equipment purchases are not allowable as institutional match.

2 The budget page(s) must reflect and the budget justification pages must explain any external funds that are claimed in the proposal. External funds and their expenditure must be accounted for in the same manner as Support Fund money and institutional match.

3 Equipment. If applicable, itemize and describe briefly the proposed equipment and its intended use in the project. Include the name, model number, and manufacturer(s).

**BOARD OF REGENTS SUPPORT FUND
TRADITIONAL AND UNDERGRADUATE ENHANCEMENT, FY 2008-09
Budget Pages**

Composite Budget Page:

	Total Support Fund Money Requested	Total Institutional Match ¹	Total Private/Other Match ²
A. Equipment ³	\$77991	\$0	\$0
B. Software	\$0	\$0	\$0
C. Supplies	\$38885	\$0	\$0
D. Shipping/handling	\$0	\$0	\$0
E. Installation	\$0	\$0	\$0
F. Personnel training	\$0	\$6352	\$0
G. Other	\$0	\$0	\$0
H. Indirect costs	Not allowed	\$0	\$0
I. Maintenance	Strongly discouraged	\$0	\$0
J. Total costs (A-I)	\$116876	\$6352	\$0

E. BUDGET AND BUDGET NARRATIVE

i. Equipment		
Description	Price \$	Intended Application
PASPORT ®Earth and Environmental Sciences Probeware bundle, LabQuest Environmental Science Deluxe Package, WARD's Agriculture and the Environment LC50, Mini Long wave UV lamp, and Acid Rain VideoLab	15,057	The equipment requested will provide students with activities more relevant to current developments in ecological and environmental sciences, and will enrich the learning activities in Fundamentals of Ecology (BIOL 206) and Environmental Biology (BIOL 216) laboratories. The LabQuest package will complement existing Vernier LaQuest System recently acquired by the department.
UV/Visible light spectrophotometer, Laminar flow hood with UV light and stand, and Carbon Dioxide tissue culture incubator	15,330	The laminar flow hood will allow students to practice proper sterile techniques in culturing cells. The carbon dioxide incubator will allow students to grow and maintain cell and tissue cultures. The spectrophotometer will allow students to quantify the amount of ssDNA, dsDNA, RNA, and oligonucleotide extracted cell/tissue cultures. These items will be used in Cell & Molecular Biology (BIOL 461, BIOL 465) labs.
A micromanipulator (to be added on to our inverted microscope), An electrode puller. A physiology set up which includes a Faraday cage, a electrometer, course and fine micromanipulators, one stereo-dissecting microscope, data acquisition system, a computer to store data for analysis, and the accessories such as magnetic holding devices and BNC cables.	13,276	The use of <i>Drosophila</i> as an experimental model to study embryonic development can be enhanced with our recent purchase of a high power inverted microscope. We request the addition of a micromanipulator and electrode puller for pulling sharp needles for embryo manipulations. This will facilitate following the developmental consequences of the manipulations, and will also be used to make electrodes to measure responses from <i>Drosophila</i> photoreceptors. This physiology set up is partly for the laboratory teaching and partly for research purpose. Students will be able to learn to handle micromanipulators and electronic equipment and observe in vivo physiological responses of photoreceptor to light stimuli. The equipment will be used for Developmental Biology (BIOL 202) Anatomy &Physiology (BIOL 305) laboratories.
Digital Microscopy systems, Dell Vostro Dual Core Mini Towers, and an Infocus LCD projectors	5,680	This system allows the feeding of microscopic images to a big screen to facilitate the demonstration of microscopic images simultaneously to the whole class. One set of the equipment will be used in the Anatomy & Physiology laboratories (BIOL 303, BIOL305). The other set will be shared between Developmental Biology (BIOL 202) and Genetics (BIOL 302) laboratories.
SteroPro Stereomicroscope, DigiVuCVM microscope, Hanna All-inOne Educational pH meters, and Carolina Electronic balance	9,158	The Digital camera and the microscope-digital camera adaptor will enhance microscopy laboratory teaching and activities. This system, the pH meter, and the balance will be used in the Principles of

i. Equipment		
Description	Price \$	Intended Application
		Biology laboratories BIOL 105, BIOL 106, BIOL115, and BIOL116.
One Drosophila incubator	7,470	The Drosophila incubator will be used in the Genetics laboratory BIOL 302. This equipment will also benefit the Developmental biology lab.
20 Wolfe ® ProZoom Binocular microscopes	12,020	With increasing enrollment, we need additional microscopes in the following laboratories: Principles of Biology (BIOL105, BIOL106, BIOL 115, BIOL 116), Developmental Biology (BIOL 202) and Intro. to Microbiology (BIOL 304) Laboratories
Subtotal for equipment	77,991	
ii. Material		
Description	Price \$	Intended Application
Acid Rain Videolab DVD	227	Fundamentals of Ecology (BIOL 206) and the Environmental Biology(BIOL 216) laboratories will use this Software with the requested Acid Rain Video Lab
Skeletons of human, dogfish, cat, pigeon, frog, snake, and bat. Human Brain Plastomount, Comparative Brain Plastomount, and Comparative Heart Plastomount.	7,644	These materials will be used in the Anatomy & Physiology laboratories (BIOL 303, and BIOL305). The materials will be shared with the Comparative Anatomy (BIOL 419) laboratory.
Collections of Coelenterate, Echinoderm, Mollusk, Frog, Forelimb set, Hind limb set, Vertebrate Half-Skull set, Skeletons of pigeon, cat, frog, dogfish , Cell sets, Somso Animal Mitosis sets, Plant Mitosis sets, and Sets of Human organ systems	30,984	The specimen collections and vertebrate skeletons will be used in the Principles of Biology laboratories (BIOL 105, BIOL 106, BIOL115, and BIOL 116).
Subtotal for material	38,885	
Total funding request	116,876*	

* Grambling State University will allow Dr. Felix Ifeanyi to spend 10% of his time directing this project, as in-kind contribution of \$6,352. Dr. Ifeanyi will coordinate the implementation of project activities.

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