2009.0015

Student Technology Fee
Funding Request Form
Surplus Funding Fiscal Year 2008-09
Northwestern State University of Louisiana

This document will not be accepted without complete information, detailed budget, specifications of each piece of equipment requested and pricing.

Prepared by: Malcolm T. Whitehead For: Exercise Science University Campus Natchitoches

College: Health & Human Performance Campus: Natchitoches Department: Health & Human Performance

Where will requested equipment be located/installed/housed: Bldg. P.E. Majors Room 123b

Are property policies and procedures in place by the department for equipment requested. Yes

Delivery to the Student Technology office located in Watson Library, Room 113. Date

1. Describe target audience.

Students who enroll in the University Core classes HED 1090 and HP 1110 will be able to utilize the equipment during specified class meetings. All students who enroll in HP 2630, 2270, 3550, 3560, 3561, and 4190 will utilize the equipment during most class meetings that are integrated with a laboratory component. These classes, or a combination thereof, are required for students who major in Health and Human Performance with concentrations in Physical Education and Health and Exercise Science, as well as those students who minor in Athletic Training.

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

The Department of Health and Human Performance proposes to implement and utilize a comprehensive metabolic assessment hardware system and software package (ParvoMedics TrueOne 2400 including computer, canopy, ergometer, treadmill, and ECG) that will focus on analysis, synthesis, and the evaluation stages of cognitive development in students, as well as promote undergraduate research projects. The TrueOne System will allow the analysis and synthesis of new data and will consist of three components during the training of students in data acquisition and interpretation. These components include experimental design, data collection, as well as analysis and evaluation of the data sets collected. This equipment will engage students in professional interests and thus increase retention as well as increase student competency with computer technology, and induce critical thinking through the application of problem solving. The implementation of this equipment into the curriculum will allow NSU the opportunity to engage technology that is currently in use at all other Universities in the state of Louisiana with similar programs, thus enhancing NSU's ability to competitively seek, recruit, and retain students. Ultimately, access to this technology will enhance our students' competitiveness in the current work force therefore positively influencing the economy of the state.

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

The measurable objectives expected to be gleaned from the implementation of this project include an exposure to and an increased understanding of some of the methodology employed to collect data in experimental and non-experimental research, an augmented ability to interpret and draw conclusions from scientific data, and an enhancement of student's overall understanding of the scientific process.

4. Indicate how each project objective will be evaluated.

The project will be evaluated every semester by administration and evaluation of a Learning Outcome Survey, see Appendix 1. The survey will be administered to students prior to (beginning of the semester) and again after (end of the semester) they have had the opportunity to use the TrueOne System. Please see appendix "A".

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

Approximately 3,184 students per academic year could be served by this project based on current enrollment.

6. If funded, which NSTEP (http://www.nsula.edu/nstep/NSTEP.pdf) objective will this funding of this project advance. How will funding of the project advance the University and College / unit technology plan?

This project will incorporate three of the ten NSTEP objectives including: (2) To provide classrooms with updated technology and multimedia, (3) To upgrade student technology laboratories with modern technology, (8) To encourage innovation and research. The project will advance the technology plan for the College of Science and Technology as well as the unit technology plan for the Department of Health and Human Performance by fulfilling objective (4) which is to upgrade laboratory equipment, specifically, the Exercise Science and Motor Learning laboratories.

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

Dr. Malcolm T. Whitehead will be the individual responsible for implementation of the project. Dr. Whitehead has had several years of experience working with TrueOne System in the collection and interpretation of data for scientific research projects.

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

Information Systems at Northwestern State University will be integral in assistance with any computer specific concerns, and ParvoMedics has technical support available for any requirements; additionally, Dr. Whitehead is the Departmental Computer System Administrator.

9. Provide a schedule for implementation and evaluation.

The TrueOne System will be implemented as soon as equipment is purchased, received, and installed. The impact of the TrueOne System will be evaluated every semester.

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

The TrueOne System should last for a minimum of 8-10 years. There are no upgrades anticipated for the TrueOne System or associated software at this time.

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

The equipment will be kept in a locked laboratory annex located within classroom number 123 in the P.E. Majors Building. During all times when the equipment is not in use the door to the laboratory will be locked. During normal business hours of the department (Monday-Friday 8:00am-4:30pm) the classroom will be open. At all times other than normal business hours, both the classroom and departmental building is kept locked. Therefore, during non-business hours there will be three (3) locked doors securing the equipment.

12. Attach a detailed budget, including: specs., description, cost, state contract number, and vendor for each item; cost of outside support personnel; and a description of how the proposal will support University/College/unit resources (i.e., cash match, funds from other sources, or reallocation of existing hardware/software or other equipment. **All of the information requested must be attached or the request will not be accepted.**

Please see appendix "B"

13. Attach a letter of support for the project signed by the requesting unit's Dean, the appropriate Vice President (for non-academic units), or the SGA President from the requesting campus (for student request).

Please see appendix "C"

Appendix A

Learning Outcome Survey

Class: _____ **Semester:** _____ **Date:** _____

SECTION 1 - MULTIPLE CHOICE

An individual was a subject in a research study investigating the physiological responses to resistance training. Using the data from figures 1 & 2 (indicated below) answer the following questions by selecting the corresponding letter.

1. What was the individual's heart rate when a weight of 125-kg was lifted?
   a. 130 beats per minute
   b. 140 beats per minute
   c. 150 beats per minute
   d. 160 beats per minute

2. At a blood pressure of 160 mm Hg, what was the individual's heart rate
   a. 130 beats per minute
   b. 140 beats per minute
   c. 150 beats per minute
   d. 160 beats per minute

3. How would you best explain the relation between blood pressure and weight lifted?
   a. Linear
   b. Curvilinear
   c. Exponential
   d. No relation

4. How would you best explain the relation between blood pressure and weight lifted?
   a. Linear
   b. Curvilinear
   c. Exponential
   d. No relation

Figure 1.

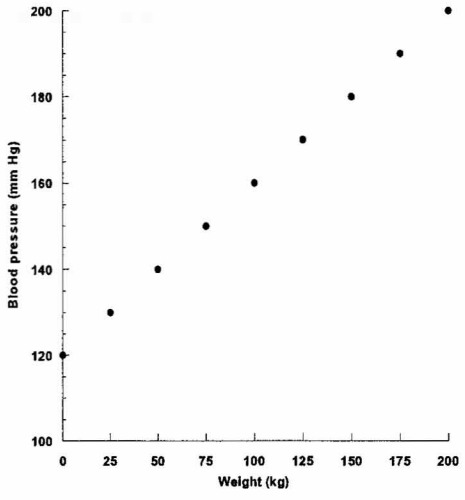
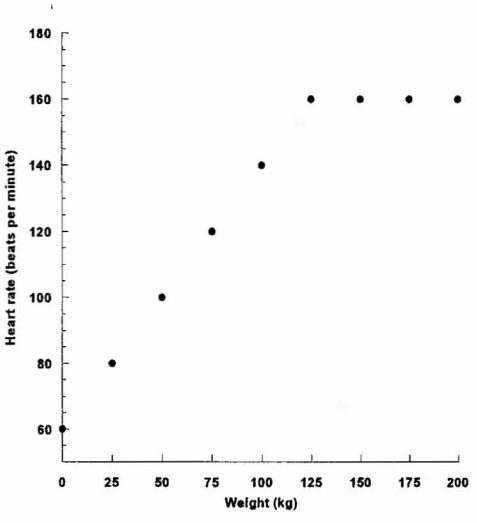


Figure 2.



SECTION 3 - True or False

Circle True if you think the statement is true and circle False if you think the statement is false.

5. **True or False** A hypothesis is a specific statement predicting what you think will happen in a study.

6. **True or False** A theory can be tested in an experiment or series of related experiments.

7. **True or False** When you test hypotheses, you ideally will reject all hypotheses that you test.

8. **True or False** Generally speaking, an increase in internal validity will increase external validity.

9. **True or False** Independent variables are free to vary and can cause change in dependent variables.

10. **True or False** In a study using pre-post testing, a control group will increase the external validity of the results.

SECTION 3 - Multiple Choice

Select the best answer to the following multiple-choice questions.

11. When you have demonstrated that an exercise program causes people in the study to lose weight, your study has strong:
    a. internal validity
    b. external validity
    c. reliability
    d. none of the above

12. In hypothesis testing, you try to find evidence to reject:
    a. all hypotheses
    b. the null hypotheses
    c. the alternative hypotheses
    d. your prediction

13. In a study where you educate half of the participants about proper nutrition but don't education the other half, the group exposed to the education program is called:
    a. contingency group
    b. control group
    c. treatment group
    d. biased group

14. Specifying estimation procedures used in a study is important in establishing:
    a. validity
    b. reliability
    c. both validity and reliability
    d. outcomes

SECTION 4 – LEVELS OF AGREEMENT

Levels of Agreement

Read the following statements and circle the number that best indicates your level of agreement, with "7" meaning that you strongly agree and "1" meaning that you strongly disagree.

15. I understand how to conduct a study to answer a research question.

1	2	3	4	5	6	7
strongly disagree						strongly agree

16. I am interested learning more about exercise physiology research studies.

1	2	3	4	5	6	7
strongly disagree						strongly agree

17. Conducting research projects in laboratories stimulates me to think about concepts learned in the classroom from a different perspective.

1	2	3	4	5	6	7
strongly disagree						strongly agree

18. I plan to attend graduate school so that I may become involved in research projects at the graduate level.

1	2	3	4	5	6	7
strongly disagree						strongly agree

19. I would like to be involved in future studies about exercise & health issues.

1	2	3	4	5	6	7
strongly disagree						strongly agree

20. I would recommend this course to my friends that are interested in Health and Human Performance.

1	2	3	4	5	6	7
strongly disagree						strongly agree

Appendix B

Budget for TrueOne System

Description	Cost
ParvoMedics TrueOne Metabolic Measurement System with PC, Printer, 2 Valves, Polar Interface, Shipping/Installation/Training, and 3-year warranty	$20,953.00
Canopy for Testing Testing with software	$3,000.00
Lode Corival Bike Ergometer with TrueOne Interface, delivery, 1-year warranty including parts and labor	$5,400.00
TrackMaster TMX425C Treadmill with TrueOne Interface, delivery, 2-year parts and 1-year labor warranty	$6,250.00
ECG Cardio-Card Resting/Stress Test ECG Cart, Notebook Computer, Printer, and Mini Mobile Cart	$5,850.00
Extended Warranty	$2,500.00
Total	$43,953.00

ParvoMedics Inc.
8152 South 1715 East
Sandy, Utah 84093
Toll-Free: 1-800-942-7255
Fax: (801)942-7796

QUOTE (Summary)

Quote Dated: 3/18/2009 (valid for 3 months)
Attention: Malcolm T. Whitehead, Ph.D., Assistant Professor
Director, Human Performance Testing Laboratory Internship Coordinator
Northwestern State U, Department of Health and Human Performance
350 Sam Sibley Road
Natchitoches, LA 71497
Phone (318)357-5133, Fax (318)357-5904

Product Description	Educational Special	
I. Metabolic Measurement System for VO2max Testing:		
1. ParvoMedics TrueOne® 2400 with 2 Valves, Polar Interface, Shipping/Installation/Training On-Site Installation and Training Warranty: 3-Year Parts and Labor	$20,953	7281
II. Canopy for Resting Testing:		
1. Canopy Hardware and Software	$3,000	4820
Total TrueOne® and Canopy	**$23,953**	
OPTIONS:		
I. Bike Ergometer:		
1. Lode Corival Bike Ergometer (750 Watts) with TrueOne® Interface and Dock Delivery Warranty: 1-Year Parts and Labor	$5,400	7281
II. Treadmill:		
1. TrackMaster TMX425C Treadmill with TrueOne® Interface and Dock Delivery (without lift gate) Warranty: 2-Year Parts and 1-Year Labor * Special Power Requirement for Treadmill: It requires a dedicated circuit and 220 volts. * If you need a lift gate to unload treadmill from truck to the ground level, please add $75.	$6,250	7281
III. ECG		
1. Cardio-Card Resting/Stress Test ECG Cart (ECG with Notebook, Printer and Mini Mobile Cart)	$5,850	7281
IV. Warranty:		
1. Extended Year 4&5 warranty of TrueOne® Analyzer and Pneumotach	$2,500	7280

* Please provide the following for the new lab:
many power outlets
sink (important, to clean the mouthpieces ... etc.)
fan (for air circulation, otherwise the room will get too hot)
counter (to dry the accessories after cleaning)
telephone (very important, for future customer support)
Latex glove
soap for cleaning and bleach for disinfection (Cidex, Procide or Omnicide for hospital)
non-moisturized liquid soap
16"W x 12"D x 5"H bucket (qty 1)
6"W x 6"D x 8"H bucket with lid (qty 2)

* For canopy cleaning:
soapy water to clean the canopy and drape
non-moisturized liquid soap

* F.O.B. Destination. The price does not include taxes.
* Payment Terms: net 30 days. * Shipping Date: 4 - 6 weeks upon receipt of purchase order.

ParvoMedics Inc.
8152 South 1715 East
Sandy, Utah 84093
Toll-Free: 1-800-942-7255
Fax: (801)942-7796

QUOTE (Detailed)

Quote Dated: 3/18/2009 (valid for 3 months)
Attention: Malcolm T. Whitehead, Ph.D., Assistant Professor
Director, Human Performance Testing Laboratory Internship Coordinator
Northwestern State University
Department of Health and Human Performance
350 Sam Sibley Road
Natchitoches, LA 71497
Phone (318)357-5133, Fax (318)357-5904

Product Description	List	Educational Special
I. Metabolic Measurement System for VO2max Testing:		
1. ParvoMedics TrueOne® 2400 Metabolic Measurement System includes:	$26,000	**$20,000**
Compact Analyzer Module		
Paramagnetic Oxygen Analyzer (range 0-100%)		
Single Beam High Speed Infrared Carbon Dioxide Analyzer (range 0-10%)		
Pressure Transducer/Demodulator		
Pneumotach Heater Control		
Gas Sampling Flowmeter and Control		
Auto-Cal Control Hardware		
OUSW-4.2 Windows O2 Uptake Software		
30-Second Gas Auto-Cal, Precision Flowmeter Calibration Algorithm		
Real-Time O2, CO2, and Flow Signal Graphic Display		
Scrollable Results Display During Testing		
Large-Font Digital and Graphic Display of Metabolic Testing Variables		
On-Line Configuration and Screen Update During Testing		
Events Charting and Editing During and After Testing		
User Configurable Text and X-Y-Y Graphic Reports		
Filing System For Results Tracking and Patient Look-up		
Results Exporting to Excel Format, Flow Cal and Gas Cal Logs		
Dell Optiplex 740 Small Form Factor Computer with 22" Flat Panel LCD Monitor		
Turion 2.3 Ghz, 2 GB RAM, 250 GB Hard Drive, 8 x DVD/RW, Windows Vista Business		
Dell Laser Printer		
A/D Card and Analog Signal Cable		
Hans Rudolph Breathing Circuits		
Heated Pneumotach (0-800 L/min), 3-Liter Calibration Syringe, Head Support, Non-Rebreathing Valve, 2 6-ft Breathing Tubes, 1 Rubber Adapter, 1 Water Trap Assembly with 6 Filters, 3 Noseclips (Reusable), 3 Mouthpieces (Reusable)		
4-Liter High-Efficiency Mixing Chamber		
Ten 5 um Gas Sampling Filters and Four Perma Pure Drying lines		
3-Shelf Mobile Cart with Extra Large Wheels, Gas Mounting Brackets, 10-ft Power Strip		
Swing Arm with Adapter Bracket		
Thermometer/Barometer/Humidity Weather Station, Operator's Guide and Installation Manual		
2-Stage CGA973 Gas Regulator		
Standard Calibration Gas, ED Cylinder		
Mix: O2 16%, CO2 4%, N2 Bal., Accuracy: +/- 0.03%, Connection: CGA973, 560 Liters @ 2200 psi		
On-Site Installation and User Training		
Warranty: 3-Year Warranty of TrueOne® Analyzer Module, Software, Dell Computer and LaserJet Printer		
2. OPTION: Extra 2-way Non-Rebreathing T-shape valve with saliva trap		$403
It is strongly recommended for new lab, so you can continue testing while the other valve is being cleaned.		
3. OPTION: Polar Heart Rate Interface (Includes receiver's plug and Wearlink transmitter		$250
It'll pick up signal from Polar chest band and allow integration of heart rate values into report. Recommended for athletic testing.		
4. Shipping and Handling		$300
Subtotal TrueOne® with 2 Valves, Polar I/F, 3-Year Warranty, Shipping/Installation/Training		**$20,953**

II. Canopy for Resting Testing:

1. Dilution Software and Hardware $3,000
   - Dilution Software
   - 1 Canopy and Drape,1 Dilution Pump,1 Pump Control
   - ED-Cylinder Gas Tank with 1% CO2, 16% O2, Balance N2, Gas Regulator
   - Single Tank Gas Hand Cart, Shipping and Handling

Total TrueOne® and Canopy **$23,953**

OPTIONS:

I. Bike Ergometer:

1. Lode Corival Bike Ergometer with TrueOne® Interface $5,100
   - Workload Range of 7 to 750 Watt
   - Workload (User-Definable Staged or Ramp Protocol) Controllable with TrueOne®
   - TrueOne Interface Cable
   - Warranty: 1-Year Parts and Labor
2. Shipping (Dock to Dock) $300

Subtotal Lode Corival (750 Watts) with TrueOne® Interface and Dock Delivery **$5,400**

II. Treadmill:

1. TrackMaster TMX425C Treadmill with Manual Controller $5,800
   - Elevation: 0 - 25%
   - Speed Range: 0.5 - 12 mph (220 volts)
   - User Capacity: 500 lbs.
   - Moveable Emergency Stop Button
   - RS232 Computer Interface
   - TrackMaster RS232 Interface Cable to TrueOne® Computer
   - Warranty: 2-Year Parts and 1-Year Labor
2. Shipping: Dock to Receiving Dock (extra for lift gate or inside delivery) $450

Subtotal TrackMaster TMX425C Treadmill with TrueOne® Interface and Dock Delivery **$6,250**

* If you need a lift gate to unload treadmill from truck to the ground level, please add $75.
* Special Power Requirement for Treadmill: It requires a dedicated circuit and 220 volts.

III. ECG:

1. ECG Cart includes: $5,700
   - Cardio-Card Resting/Stress Test ECG
     - 12 Lead PC ECG
     - Real-Time 3, 6 or 12 Lead Color Display of ECG/EKG Complex
     - 29 Preprogrammed Protocols with 5 User Defined Protocols each with 40 Stages
     - TrueOne® Interface
     - Warranty: 1-Year Parts and Labor
   - Dell Notebook Computer: 1-Year Parts and Labor Warranty
   - Dell Laser Printer: 1-Year Parts and Labor Warranty
   - Anthro Mini Mobile Cart with Basket
     - 7"W x 22"D x 35"H, 4" Wheels
2. Shipping $150

Total Cardio-Card ECG Cart and Shipping **$5,850**

IV. Extended Warranty:

1. Extended Year 4&5 warranty of TrueOne® Analyzer and Pneumotach **$2,500**

   It does not cover computer, monitor or printer. It covers the following components:

   A. The TrueOne® analyzer, which contains the O2 analyzer, CO2 analyzer, pressure transducer, gas sampling pump and heater control.

   B. Heated pneumotach.

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* F.O.B. Destination. The price does not include taxes.
* Payment Terms: net 30 days. * Shipping Date: 4 - 6 weeks upon receipt of purchase order.

Appendix C

COLLEGE OF SCIENCE & TECHNOLOGY
OFFICE OF THE DEAN

April 20, 2009

Dear Committee Members:

I am pleased to recommend this proposal to you. The equipment will have an immediate impact in undergraduate laboratories and will be a research tool that will be used by both undergraduate and graduate student. The equipment is state of the art and this prepares our students to meet the demands and challenges in present job market.

I appreciate your consideration of this proposal and I know of no better way to make a difference in this academic department than to purchase this much needed equipment.

Very truly yours,

Austin L. Temple Jr., Ph.D.
Dean, College of Science and Technology

Northwestern State University, Natchitoches, Louisiana 71497
A Member of the University of Louisiana System
Phone (318) 357-6699 FAX (318) 357-5599