

INSTRUCTIONAL EQUIPMENT REQUEST 2016-2017

Internal Use

IE #: FALL 56

Total \$: 12,828.21

Requester Name: Eric Harpell Division Name: MSEPS

SECTION 1: SUMMARY INFORMATION

Brief Title of the Request:

Intructional Equipment for Physics, Astronomy, and Enviornmental Science

Equipment Location Building: 1800 Room: 1824

SECTION 2: EQUIPMENT DESCRIPTION

The equipment is: A Replacement An Upgrade New Equipment/Technology

Describe the specific equipment requested and how it will be used to replace, upgrade or provide new technology to LPC from what is currently in place:

See Attached Document!

If applicable, describe the legal requirement, mandate, or safety concern for purchase of this equipment, making specific reference to the legal requirement or regulation:

Not Applicable

Section 2: Description of the specific equipment and how it will be used

REQ
#

①	Laser Ray Box and Lenses	Both replacement and new: A complete set of kits for in class demonstration and laboratory investigation of optics. Current optics kits are missing components and cannot effectively serve the number of students now taking physics 8C and 2B. This both extends and improves our laboratory capabilities.
①	Primary Color Light Sticks	New Equipment: Extends and improves our laboratory and demonstration capabilities.
①	Compound Bar Set	New Equipment: Extends the capabilities of our extending thermal expansion lab to be compatible with theory in both physics 8C and Materials Engineering courses.
②	25.4 x 50.8mm PFL 90° Off-Axis Parabolic Gold Mirror	New Equipment: Allows measurement of thermal emission in both Physics 8C and 8D laboratories. A single set is ordered for testing and student project use, with more to be ordered later
③	PDA30G - Pbs Fixed Gain Detector, 1.0-2.9 μm, AC-Coupled Amplifier, 1 kHz BW, 9 mm ² , 120 VAC	New Equipment: Allows measurement of thermal emission in both Physics 8C and 8D laboratories. A single set is ordered for testing and student project use, with more to be ordered later
④	Photogate	Replacement--also Increases number of possible lab stations in Physics 8A, and Physics 2A. Current sets limit number of lab groups to five or six.
④	Infrared Thermometer	New equipment: allows a variety of temperature measurements in the Physics 8C and 2A labs. Will also be used as demonstration equipment in Environmental Science 5 (EVST5).
④	Stainless Steel Temperature Probe	Replacement--also Increases number of possible lab stations in Physics 8C, and Physics 2A. Currently must be borrowed from Chemistry.
④	Magnetic Field Sensor	New Equipment, also replaces a small number of older Sensors. These will be used in Magnetic field laboratories in Physics 8B and 2B.
④	Vernier Energy Sensor	New Equipment: to be used in Physics 8C and 2A labs in wind and solar energy labs.
④	KidWind Small Water Pump with Tubing	Replacement equipment: will replace poorly functioning pumps used in physics 8C labs, with possible applications in physics 2A and EVST 5.
④	Microphone	Replaces older sensors and Increases the number of lab groups that can use this equipment in Physics 8C and physics 2A labs. Also used in Physics 10L and as demonstration equipment in all classes.
④	Pyranometer	Increases the number of lab groups that can perform labs in measuring solar energy, and thermal emission in Physics 8C, and 8D. Also has applications in physics 2A, 10L, and EVST5.
⑤	Leslie's Cube	Increases the number of lab groups that can perform labs in physics 8C.
⑥	High Voltage Power Supply 5 kV (115 V, 50/60 Hz)	Increases the number of lab groups that can perform a variety of different labs in physics 8B, 8D, and physics 2B.
⑦	PACIFIC DESIGN SOFT PADDED CASE CPC925,11 AND MEADE LX200/10 OTA	New equipment: Allows new 8" telescope to be transported to observing locations on and off campus without damaging scope. Replaces cardboard box.
⑧	Series 4000 2" Eyepiece and Filter Set	Replaces eyepieces that have been lost or damaged. Used in astronomy labs and for student viewing in other astronomy classes.

SECTION 3: LPC MISSION STATEMENT AND LPC PLANNING PRIORITIES

LPC MISSION STATEMENT:

LPC is an inclusive learning-centered institution providing educational opportunities and support for completion of students' transfer, degree, basic skills, career-technical, and retraining goals.

LPC PLANNING PRIORITIES:

- ❖ Establish regular and ongoing processes to implement best practices to meet ACCJC standards.
- ❖ Provide necessary institutional support for curriculum development and maintenance.
- ❖ Develop processes to facilitate ongoing meaningful assessment of SLOs and integrate assessment of SLOs into college processes.
- ❖ Expand tutoring services to meet demand and support student success in Basic Skills, CTE, and Transfer courses.

Specify how the equipment supports *LPC's Mission Statement and Planning Priorities*:

All of the equipment on this request is used to teach physics, astronomy, or environmental science at college level, preparing students for transfer or career-technical goals. Students using this equipment will have transferable skills when applying for university. Supports curriculum development by providing new experiments for the students to use and maintains the high level experiments already in use.

SECTION 4: EDUCATIONAL ITEMS – PROGRAM REVIEW

Specify the educational programs this equipment supports:

Physics, Astronomy, and Environmental Science/Studies.

If this equipment is included in your Program Review, please include the exact wording. If equipment is not included, explain why:

Due to the technical nature of physics equipment, we did not discuss items individual in the Program review update. In the last program review however, we did discuss the critical need to increase our lab group size and update our physics lab equipment. It was our decision at the time of the last Instructional grant to address needs primarily in Physics 8A and 8B. This grant is focused on physics 8C and 8D as well as items still needed in the physics 8A, 8B, 2A and 2B courses. Here is our working from the 2015SPPU:
"Our instructional grant for Fall 2015 will allow us to scale up our prototype experiments so that they can be done by each lab group. Furthermore, we are applying for funds to increase the number of "sets" of lab equipment from 6 to 8 or 12 so that less students will have to work together on the same piece of equipment."

Here is the relevant sections from the 2015-2017 PPU:
"We have continued our efforts to develop new labs for the Physics 8 series. Specifically, several inquiry-style labs have been developed and implemented for Physics 8A and 8B over the past year. The purpose of these labs is to give students more control over their learning in the lab classroom and provide them with first-hand experience using the scientific method to design, implement, and assess their own physics experiments."
"Over the coming year, we plan to continue to develop new labs for our Physics 8 series."
"We believe that these new labs will help improve student learning in the classroom"

SECTION 5: TEACHING AND LEARNING

Describe in detail the impact this equipment will have on teaching:

All equipment requested is to improve our ability to deliver quality instruction to the students. In many cases, lecture material can be made highly relevant to the experiment that students will do in the upcoming lab. Also, virtually all the material ordered will have a function as demonstration equipment as a way for visual learners to connect with otherwise abstract concepts.

Describe in detail the impact this equipment will have on learning:

the majority of the equipment requested will be used in hands on laboratory activities that reinforce class material and many cases inform students about the practical and conceptual meaning of relevant concepts.

Each academic year, this equipment will impact: 16 # of classes/sections 360 # of students

SECTION 6: OUTCOMES (SLOs)

Using your documented SLOs, specify how the equipment will enable student learning outcomes to be achieved?

Our SLO: "Analyze physical situations quantitatively by selecting relevant equations and models, modifying them as appropriate, and using them correctly to solve problems."
Although this SLO is relevant in all physics courses, both lecture and laboratory, it is especially relevant in Inquiry style labs being developed in the physics 8 sequence.

What are the consequences related to learning outcomes if request is not funded?

Compliance with the instructional aspect of our SLO virtually requires us to provide a meaningful relevant laboratory experience. When students have sensors that is not compatible with existing interfaces, or have too many students trying to use too few pieces of working equipment, or finally if we do not provide equipment that actually allows the students to investigate the physics being taught, then we are not providing them with the tools necessary to analyze, model, discuss, and evaluate physical situations as discussed in our SLO.

SECTION 7: TOTAL COST OF OWNERSHIP (FINANCIAL & SUSTAINABILITY)

What is the potential life span of the requested equipment?

Ranges depending specific items. Average lifespan will be ten years. Some equipment will last much longer.

If new storage is needed, describe the storage, location, and costs: (Specific storage costs should be detailed in the "Part A: Initial Start-up Costs" section below.)

No new storage is needed at this time.

What will be required to maintain the equipment, such as regular servicing or upkeep? (Specific on-going costs should be detailed in the "Part B: On-Going Annual Operating Costs" sections below as applicable.)

None. Upkeep and serving is part of lab tech regular duties.

Explain how this equipment meets or exceeds basic sustainability efforts and/or provides renewable resources to the college:

approximately 1/3 of the equipment will be used labs highlighting alternative forms of energy such as wind and solar.

Part A: Initial Start-up Costs

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Equipment or Materials	\$10,604	
Taxes (9.5%)	\$1007	
Shipping or Delivery Charge	\$400	
Installation Costs *	0	
Miscellaneous Costs:	0	
Facilities Modifications	0	
Operator Training	0	
Maintenance & Repair Training	0	
Other:	0	
Vendor Discount	0	
Grand Total: \$12,011		

Part B: On-Going Annual Operating Costs

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Annual Service or Maintenance	0	
Estimated Parts Replacement Per Year	0	
Outside Standardization or Calibration Costs	0	
Storage Costs	0	
New Supply Costs	0	
Miscellaneous Costs:	0	
Maintenance & Repair Labor	0	
Other:	0	
Annual Operating Costs:		0

Indicate the source of funding for on-going annual operating costs:

None required

Part C: Incremental Labor Costs

OPERATOR:

Indicate the key operator: Andrew Lozano

Is this in their current scope of duties? yes

Indicate cost to train key operator (include in Initial Start-up Costs above): 0

Indicate amount of time per month key operator will use equipment: varies, up to 50%

MAINTENANCE & REPAIRS:

Indicate the person performing maintenance and repairs: Andrew Lozano

Is this in their current scope of duties? Yes

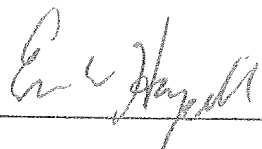
Indicate cost to train for maintenance and repairs: 0

Indicate amount of time per month maintenance will be required: 5 hours (estimate)

SECTION 8: APPROVALS

Funded requesters will be expected to respond to a brief RAC feedback survey by a requested deadline. Requests for computer-related equipment and printers must be reviewed by the LPC IT Department.

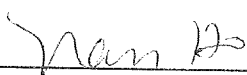
Signatures:

Eric W. Harpell 
Requester

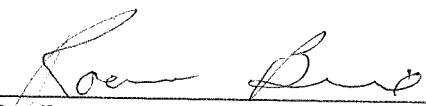
10/14/2016
Date

IT Department (if required)

Date


Dean/Manager

10/27/16
Date


Vice President




10/31/16
Date

Shop by Topic Lab Supplies Conceptual Physics Multimedia Science Gifts Labs, Activities & Other Cool Stuff

SHOPPING CART


Don't lose your items! Register or log in and we'll keep them for you.

Compound Bar Set was added to your shopping cart.

Product Name	Unit Price	Qty	Subtotal
 <u>Laser Ray Box and Lenses</u> P2-7680	Edit \$92.00	<input type="text" value="8"/>	\$736.00
 <u>Primary Color Light Sticks</u> P2-8100	Edit \$26.00	<input type="text" value="8"/>	\$208.00
 <u>Compound Bar Set</u> P6-7080	Edit \$30.00	<input type="text" value="1"/>	\$30.00

[Continue Shopping](#) [Update Shopping Cart](#)


You may be interested:



Acrylic Lens and Prism Set
\$45.00
As low as: \$41.00

[Add to Cart](#)

[Add to Wishlist](#)
[Add to Compare](#)

 **PRINT QUOTE**
Getting a quote is as easy as 1-2-3!
Step 1: Estimate your shipping and tax below!

Subtotal \$974.00
Grand Total \$974.00

[Proceed to Checkout](#)

[Print Quote](#)

GIFT CARDS
Enter the gift card code

[Add Gift Card](#)

[Check Gift Card status and balance](#)

DISCOUNT CODES
Enter your coupon code if you have one.

[Apply Coupon](#)


ESTIMATE SHIPPING AND TAX
Enter your destination to get a shipping estimate.

Country *

State/Province

i **TECHSPEC® Imaging Lenses are going through some name updates!** Check out what your favorite lenses are now named. | [Learn More \(/products/imaging-lenses-name-change/\)](/products/imaging-lenses-name-change/)

Shopping Cart

Product	Price	Qty	Total
 <p>25.4 x 50.8mm PFL 90° Off-Axis Parabolic Gold Mirror (/search/index.cfm?criteria=47-100) Stock No. 47-100 <small>IN STOCK</small></p>	\$250.00 <input type="checkbox"/>	2 Update Qty	\$500.00
Subtotal			\$500.00
Estimated Shipping			TBD
Tax			TBD
Total			\$500.00

[\(/search/index.cfm?criteria=47-100\)](/search/index.cfm?criteria=47-100)

Chat now





Home >> Detectors >> Amplified Detectors >> Amplified PbS and PbSe Photodetectors: NIR - MIR Wavelengths >> PDA30G

PDA30G - PbS Fixed Gain Detector, 1.0-2.9 μm, AC-Coupled Amplifier, 1 kHz BW, 9 mm², 120 VAC



Zoom

Complete Product Details

Part Number: PDA30G [Ask a technical question](#)

Package Weight: 2.09 lbs / Each

Available / Ships: Today

RoHS: RoHS

Price: \$411.00

Add To Cart: Qty

Release Date: Sep 22, 2005

Drawings and Documents:

- Auto CAD PDF
- Auto CAD DXF
- Solidworks
- eDrawing
- Step
- Manual:
- RoHS: RoHS

[Download all support documents](#)

Building a Setup?
One-Click download of multiple documents available from the shopping cart. No purchase necessary.

Warranty (Subject to our General Terms and Conditions)
Two year warranty. Incorporated light sources are warranted for the lesser of one year or (to the extent applicable) the number of hours stated in the specifications.

[Share this Product](#) [Print Friendly](#) [Add favorite](#) [Watch for updates](#)

Product Feedback - Let us know what you think about our PDA30G product. [Click here to leave us your feedback.](#)

4

#R

LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

FOR REIMBURSEMENT: List payee name & ssn. **Vernier.com**

TAX ID#

FOR OFFICE USE ONLY

SUGGESTED VENDOR **Vernier.com** DATE WRITTEN **10/14/2016** DATE REQUIRED **12/31/2016** DIVISION/ DEPARTMENT **MSEPS** For inventory purposes include room # where equipment will reside: **1824**

NAME OF STAFF MEMBER **Andrew Lozano** RETURN COPY OF REQUISITION TO: **L. Cross, A. Lozano**

DESCRIPTION	(PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)	UNIT	QTY	UNIT PRICE	EXTENDED COST
Photogate	VPG-BTD Photogates allow for extremely accurate timing of events within physics experiments		12	\$ 45.00	\$ 540.00
Infrared Thermometer	IRT-BTA Infrared Thermometer is a non-contact, fast-responding temperature measuring device		6	\$ 179.00	\$ 1,074.00
Stainless Steel Temperature Probe	TMP-BTA The Stainless Steel Temperature Probe is a rugged, general-purpose temperature sensor that can be used in organic liquids, salt solutions.		8	\$ 29.00	\$ 232.00
Magnetic Field Sensor	MG-BTA sensor uses a Hall effect transducer, and measures a vector component of the magnetic field near the sensor tip		8	\$ 58.00	\$ 464.00
Vernier Energy Sensor	VES-BTA The Vernier Energy Sensor offers an easy way to quantify voltage, current, power, and energy output of small wind turbines and solar		8	\$ 79.00	\$ 632.00
KidWind Small Water Pump with Tubing	KW-PUMP KidWind Low Voltage Water Pump is a great way to demonstrate power output from the wind and solar kits.		10	\$ 11.00	\$ 110.00
Microphone	MCA-BTA Use the Microphone to display and study the waveforms of sounds from voices and musical instruments		8	\$ 39.00	\$ 312.00
Pyranometer	PYR-BTA The Pyranometer measures the power of electromagnetic radiation.		5	\$ 199.00	\$ 995.00
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
Vendor Information/ Remit To:					
on file					
Deliver To, include room # (optional):					
Room 1824					
Subtotal \$ 4,359.00					
Tax \$ 0.0950 \$ 414.11					
Shipping (if available): \$ 0.00					
TOTAL COST \$					4,773.11

No Substitutes

Original invoices and receipts must be attached for payment. Include current taxes unless incorporated in price.

ACCOUNT # _____ FUND _____ ORG _____ ACCT _____ PROGRAM _____

APPROVALS Supervisor/ Coordinator/ Director _____

Dean/ VP/ President _____

Business Office

Your Cart

Quantity	Product	Order Code	Unit Price	Total
<input type="text" value="12"/>	Photogate	VPG-BTD	\$45.00	\$540.00
<input type="text" value="6"/>	Infrared Thermometer	IRT-BTA	\$179.00	\$1,074.00
<input type="text" value="8"/>	Stainless Steel Temperature Probe	TMP-BTA	\$29.00	\$232.00
<input type="text" value="8"/>	Magnetic Field Sensor	MG-BTA	\$58.00	\$464.00
<input type="text" value="8"/>	Vernier Energy Sensor	VES-BTA	\$79.00	\$632.00
<input type="text" value="10"/>	KidWind Small Water Pump with Tubing	KW-PUMP	\$11.00	\$110.00
<input type="text" value="8"/>	Microphone	MCA-BTA	\$39.00	\$312.00
<input type="text" value="5"/>	Pyranometer	PYR-BTA	\$199.00	\$995.00
Add a product by order code <input type="text"/>			Product Total	\$4,359.00
			Subtotal	\$4,359.00

Vernier Software & Technology
 13979 SW Millikan Way
 Beaverton, OR 97005

Phone 1-888-837-6437
 Fax 503-277-2440
 Email info@vernier.com



Thank you for viewing the Vernier website.
 Please do not hesitate to contact us with any questions.

Have a nice day!



Top » Catalog » Cart Contents

Log In | Cart Contents | Checkout

Shopping Cart

1 x Leslie's Cube

\$24.00

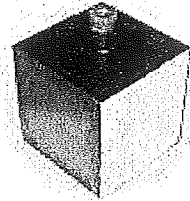


What's In My Cart?

Categories

- 4th Dimension Metrics-> (14)
- Art to Live With (12)
- Executive & Desk Toys-> (41)
- Games & Puzzles (7)
- Glow-in-the-Dark Products-> (38)
- Jewelry-> (48)
- Kits & Models-> (34)
- Lab Essentials-> (74)
- Lighting-> (14)
- Musical Items (7)
- Optical Devices (9)
- Posters, Books, Cards-> (16)
- Radios (1)
- Things We Like (10)
- Boats & Tin Toys-> (23)
- Weather Instruments-> (5)
- Young at Heart - Toys-> (42)
- Clearance

REMOVE PRODUCT(S)



Leslie's Cube

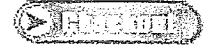
Qty.

4

TOTAL

\$24.00

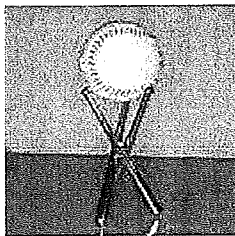
Sub-Total: \$24.00



Areas of Physics

Please Select

What's New?



Eye-on-the-Ball Teleidoscope

\$75.00

Site Search

Search



We also accept checks and money orders!

American 3B Scientific
2189 Flintstone Drive, Suite 0
Tucker, Georgia 30084 U.S.A.
1-888-326-6335
+1 770 492 0111

[How to find us](#)

Enter Priority Code Here

Gift card? You'll be able to enter it later.

Sub-total \$ 3,220.00

Shipping Charges \$ 65.95

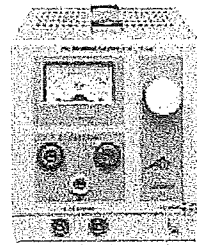
Total \$ 3,285.95



[Checkout](#)



Recently viewed items:



High Voltage Power Supply 5 kV (115
V, 50/60 Hz)
\$ 644.00

[PrevNext](#)

E-mail Sign-up

Enter your e-mail here.

Connect with us

Connect with us



Customer service

- [Shipping Returns](#)
- [Contact](#)





3B Scientific



Customer service
1-888-326-6335

[Wishlist](#) | [Create Account](#) | [Login](#)



- [PRODUCTS](#)
- [QUICK ORDER](#)
- [E-mail Sign-up](#)
- [Wishlist](#)
- [Create Account](#)
- [Login](#)

Search



Item

Qty

Unit price Sub-total



High Voltage Power Supply 5 kV (115 V, 50/60 Hz)



5

\$ 644.00 \$ 3,220.00

U33010-115 [1003309]

[Remove](#)

Cart



High Voltage Power Supply 5 kV (115 V, 50/60 Hz)

U33010-115 [1003309]

Unit price

Qty

Sub-total

\$ 644.00

5

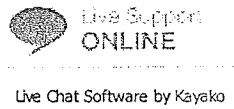
\$ 3,220.00

[Remove](#)



PayPal





JOIN OUR NEWSLETTER

For Email Marketing you can trust.

[Menu](#)

SHOPPING CART

[PROCEED TO CHECKOUT](#)

Pacific Design Soft Padded Case CPC925,11 and Meade LX200/10 OTA was added to your shopping cart.

PRODUCT	PRICE	QTY	SUBTOTAL
 PACIFIC DESIGN SOFT PADDED CASE CPC925,11 AND MEADE LX200/10 OTA SKU: PAC-CM9251011	\$299.95	<input type="text" value="1"/> Edit	\$299.95

[EMPTY CART](#)

[UPDATE SHOPPING CART](#) -OR- [CONTINUE SHOPPING](#)

DISCOUNT CODES

APPLY

ESTIMATE SHIPPING AND TAX

COUNTRY * STATE/PROVINCE/ZIP *

United Sta ▾

Please selec ▾

ESTIMATE

SUBTOTAL \$299.95

GRAND \$299.95
TOTAL

PROCEED TO CHECKOUT

QUICK LINKS

- HOME
- TELESCOPES FOR SALE
- MADE TELESCOPES
- CELESTRON TELESCOPES
- TELESCOPE CAMERAS

COMPANY

- ABOUT US
- CONTACT US
- PRIVACY POLICY
- SHIPPING
- CAREERS
- DISCLAIMER
- RETURN POLICY

CONNECT WITH US

- FACEBOOK
- TWITTER
- GOOGLE+



918 MISSION AVENUE
OCEANSIDE, CA 92054

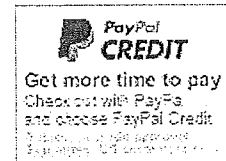


BBB Rating: A+

Click for Review



powered by Symantec



ABOUT SSL CERTIFICATES

[STEP INTO THE BLUE - MEADE INSTRUMENTS PRODUCT GUIDE >](#)

Shopping Cart



Series 4000 2" Eyepiece and Filter Set

Edit

Unit Price \$279.95

Quantity 3

Subtotal \$839.85



[Continue Shopping](#)

[Clear Shopping Cart](#)

[Update Shopping Cart](#)

Shipping and Tax will be calculated during Checkout.

DISCOUNT CODES

Enter your coupon code if you have one.

Grand Total \$839.85



[Proceed to Checkout](#)