

INSTRUCTIONAL EQUIPMENT REQUEST

FALL 2019-2020

SEP 19 2019

Internal Use
IE #: Fall 19-27
Total \$: 27,740.5

Requester Name: Andrew Lozano

Division Name: STEM

SUMMARY INFORMATION

Title of Item: Physics Expansion and Upgrades

Equipment Location Building: L1800

Room: 1822, 1824, and 1831

Location and Delivery Comments:

SECTION 1: 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:

The physics department has steadily grown over the past 5 years. In Fall 2018 we had 229 total course enrollment, and in Spring 2019 we had 190 total course enrollment. This is a 52% increase in enrollment from 2014 (Program Review Discipline Data packet, Fall 2014 to Fall 2018, Physics). This increase has required the department to add courses and increase lab sections each semester. Indeed, this increase has manifested the need to add 5 sections of Physics-1a, and increases in other sections this fall 2019. As consequence, the engineering lab, room 1822, is used as annex, and has been fitted with some of the requisite tools and equipment to operate a physics lab course as requested by previous IER's. However, with the new scheduling matrix rooms, 1822 and 1831, are used simultaneously for physics, putting increased pressure for equipment use. That is to say, at any giving time, some equipment must be used by both lab-rooms; therefore, a doubling of equipment is now mandated.

As well as general increased enrollment, a new Lab section, Phys 10L, has been created to better sever the engineering cohort. The equipment purchased will greatly improve this new lab and other physics labs.

See Attachment 1 for detail product & equipment.

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Office of the Vice President

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SECTION 1: EQUIPMENT DESCRIPTION (contd)

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

There are no safety concerns for the purchase. All equipment on the order are safe and already is used in the lab room.

SECTION 2: 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:

- ❖ **Accreditation:** Establish regular and ongoing processes to implement best practices to meet ACCJC standards.
- ❖ **Curriculum:** Provide necessary institutional support for curriculum development and maintenance.
- ❖ **Tutoring Services:** Expand tutoring services to meet demand and support student success in Basic Skills, CTE, and Transfer courses.
- ❖ **Professional Development:** Coordinate available resources to address current and future professional development needs of faculty, classified professionals, and administrators in support of educational master plan goals.

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

The new equipment is necessary to support Physics 1a & 1b that will be held in 1822, it will serve the Physics 10L's development. This will increase student success and completion. Indeed, this is needed academic support.

Physics 10L, the Extended lab for engineering cohort, provides educational opportunities and supports basic skills, career-technical, and retraining. The equipment will be used by the cohort as well as the Engineering and Physics student body that have goals towards Transfer Degree.

In order to meet and implement best practices of the ACCJC standards, updated equipment is needed. Currently, the Physics labs are in need of a doubling in equipment because there is not enough to service simultaneous labs, and in some cases the equipment has become worn, broken, or missed placed.

SECTION 3: EDUCATIONAL ITEMS – PROGRAM REVIEW

Specify the educational programs this equipment supports:

Physics 1 Series, mainly: 5 sections of 1A and 2 sections 1B;
Physics 2A & 2B
Physics 10L

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

Specific equipment is not included in the Program Review, however the need for greater lab space is reported in PROGRAM REVIEW
Fall 2018:
1)
sections and not conflict with required STEM classes. In spring of 2019 we have scheduled physics labs in room 1822 as well as the traditional lab space of 1831. This is less than idea as no physics equipment is stored in that room, engineering has dedicated equipment occupying much of the available space, and scheduling has been a challenge to avoid conflicting with the use of the room for Engineering.
The need for expanding space came before deciding what lab would be place in the space, room 1822.

SECTION 4: TEACHING AND LEARNING

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

The department will be able to run 2 physics labs at the same time without continuously interrupting each other with equipment needs. This will provide the instructors the tools they would need to run a proper lab.

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

The majority of our labs have moved from Lab-Manual instruction to inquiry based learning. Essential, to this method is the need for the lab room and equipment to become modular, that is to say, equipment must be on "stand-by" ready to be use upon the request of the inquisitor (the student). It is therefore necessary to have independent equipment in all rooms.

Each academic year, this equipment will impact: 6 # of classes/sections 144 # of students

SECTION 5: OUTCOMES (SLOs)

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

From SLO:

Upon successful completion of an AS in Physics, students are able analyze physical situations quantitatively using fundamental physics principles, ranging from Newtonian mechanics to modern physics.

The carts with accessories, Rotational inertia set with Accessories, electronic balances, and weight sets supports this outcome.

Upon successful completion of an AS in Physics, students are able to design and conduct laboratory experiments, and analyze and interpret their data.

The method of inquiry based labs means that students design their own experiments with lab equipment in the room.

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

As stated above, a doubling of equipment is needed to effectively and efficiently operate simultaneous physics labs. If the we don't have new sets of different equipment the student will have to continue to share equipment from different rooms, creating an inefficient and halted learning environment.

Room 1822 has been modified somewhat to accommodate physics lab courses; Some equipment for physics experiments are in the room. However, constantly transporting other types of equipment causes damage to the already greatly worn equipment we have. Experimentation suffers as a consequence.

SECTION 6: TOTAL COST OF OWNERSHIP (FINANCIAL & SUSTAINABILITY)

What is the potential life span of the requested equipment?

10-15year

If new storage is needed what are the storage requirements, location requirements, and costs associated with the new equipment: (NOTE: Specific storage costs should be detailed in the “Part A: Initial Start-up Costs” section below.)

No additional coast will be needed for storage

If this equipment replaces old equipment but the old equipment will not be retired, are there on-going storage requirements, location requirements, and costs associated with the old equipment? If so, provide details.

That items that are being purchased, mainly the rotational inertial equipment, will be kept as spare equipment. No cost associated with old equipment

If your proposed equipment will require assembly or installation, please explain what is required, who will perform it, and what the cost will be

N/A

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.)

N/A

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

Some of the equipment will be used in a future EVST 5 Lab that is currently under development. As well, Rotational inertia, mass sets, and carts don't use any power, and therefore will represent a small decrease in campus power use meeting the basic sustainability effort.

SECTION 6: TOTAL COST OF OWNERSHIP (contd)

Part A: Initial Start-up Costs

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Equipment or Materials	\$25,333.8	
Taxes (9.5%)	\$2,406.71	
Shipping or Delivery Charge	\$1000	estimate
Installation Costs *	—	
Miscellaneous Costs:	—	
Facilities Modifications	—	
Operator Training	—	
Maintenance & Repair Training	—	
Storage	—	
Other: _____	—	
Vendor Discount		
Grand Total:		\$28,740.51

*For items requiring installation, requesters are required to check with District Purchasing (Victoria Lamica) regarding District policies.

Part B: On-Going Annual Operating Costs

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

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

SECTION 6: TOTAL COST OF OWNERSHIP (contd)

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LAS POSITAS COLLEGE

Part C: Incremental Labor Costs

OPERATOR:

Indicate the key operator: Andrew Lozano, Tech

Is this in their current scope of duties? Yes

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

Indicate amount of time per month key operator will use equipment: General Student use

MAINTENANCE & REPAIRS:

Indicate the person performing maintenance and repairs: Andrew Lozano, Tech

Is this in their current scope of duties? Yes

Indicate cost to train for maintenance and repairs: N/A

Indicate amount of time per month maintenance will be required: N/A

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 and signed off by the LPC IT Department.
- ❖ Requests that require M&O assistance with assembly or installation must be signed off by M&O.

SIGNATURES:

Andrew Lozano
Requester

9/12/2019
Date

Steph
IT Approval

9/24/19 N/A
Date

Man
M&O Approval

9/24/19 N/A
Date

Nan Ho
Division Dean

9-17-19
Date

Krista White
Vice President

9/20/19
Date

Attachment 1

Vender	Product ID	Product	Description	Unit Price	Qty	Price
pasco	ME-6824	Mini Launcher Spares Kit - ME-6824	Loading Rod (10), 2-D Collision Accessory (2), Steel Balls (10-pack), Angle Indicator Plumb Bobs (24-pack), Thumbscrew to attach launcher to base (10)	\$ 60.00	2	\$ 120.00
pasco	ME-9377A	Picket Fence - ME-9377A	The distance from the leading edge of each black bar to the leading edge of the next black bar is 5.0 cm.	\$ 10.00	16	\$ 160.00
pasco	ME-8999	IDS Spring Kit ME-8999	Box of 12 springs with spring constants of 3.4 N/m and 6.8 N/m.	\$ 35.00	3	\$ 105.00
pasco	ME-5703	Pasco Dynamic System- track, carts accessories	2 Leveling feet (feet are separate for aluminum tracks, but built-in to the plastic tracks), 2 Endstops, rod clamps, 2 Mass Bars (4 with metal carts)	\$ 300.00	16	\$ 4,800.00
pasco	ME-9774	Rotational Inertia Set - ME-9774	With this set, students will learn that the speed of an object rolling down a ramp is determined by the shape or distribution of mass of an object	\$ 180.00	8	\$ 1,440.00
pasco	ME-8950A	Complete Rotational System - ME-8950A	PASCO's Complete Rotational System provides a range of experiments in centripetal force, angular momentum and rotational motion.	\$ 975.00	8	\$ 7,800.00
pasco	ME-1235	PASCO Stopwatch, 10-pack - ME-1235	10-pack of the PASCO Stopwatch	\$ 295.00	1	\$ 295.00
pasco	SF-9069	Electroscope - SF-9069	Ideal for demonstrating electrostatic charges in a qualitative way. When the electroscope has a charge applied to it the pointer turns and indicates the size of the charge	\$ 200.00	6	\$ 1,200.00
pasco	SE-7342	Tuning Fork Set - SE-7342	The set includes 8 forks representing a full octave of frequencies, a soft protective case and a rubber mallet. Notes(Hz): c265, d288, e330, f341.3, g384, a426.7, b480, c512	\$ 80.00	8	\$ 640.00
pasco	SE-9446	Test Tube-Utility Clamp - SE-9446	The V-shaped, plastic-coated jaws of this Test Tube-Utility Clamp open from 5 to 35 mm, rotate 360° and lock in position at any angle. Fits rods up to 16 mm (5/8 in.) in diameter	\$ 18.00	16	\$ 288.00
						\$ 16,848.00

Vender	Product ID	Product	Description	Unit Price	Qty	Price
Amazon	B008C4RVYE	Corning Pyrex Corning Beaker Set (Set of 5)	Glass wear	\$ 40.32	6	\$241.92
Amazon	B01LWQ5K9K	VIZ-PRO Magnetic Whiteboard/Dry Erase Board, 48 X 36 Inches, Silver	Overall size: 48" x 36" (frame included); Writing surface size: 46" x 34. For use in the classrooms	\$56.80	3	\$170.40
Amazon	B072KC4JF5	MulMark 26ft Measuring Tape Measure by Imperial Inch Metric Scale	HIGH ACCURACY - 2 scales of metric and imperial is perfect for accurate measurement; The 1-Inch blade is bend resistant and very straight even if the tape is stretched too long and too many times, not be deformed easily; Removable magnetic hook can reduce error caused by the thickness of tape, which improves accuracy for measurement of inside and outside	\$13.99	12	\$167.88
Amazon	B00004T7TI	General Tools 790-8 Hexagon Steel Plumb Bob, 8 Ounce	General Tools steel plumb bobs feature a hexagonal body of cold-drawn steel with nickel plating. Features a removable cord cap for easy cord replacement	\$7.20	8	\$57.60
						\$637.80

Vender	Product ID	Product	Description	Unit Price	Qty	Price
Ward's Science	470304-046	Slotted Weight Set of 12, Aluminum	Includes a 50g aluminum hanger and 12 aluminum weights, 9x20g, 1x10g, and 2x5g.	\$ 13.25	24	\$ 318.00
Ward's Science	470003-584	Hooked Weights	Set of nine hooked weights. Range from 10g to 1000g. Made of cast iron.	\$ 88.00	12	\$ 1,056.00
Ward's Science	470217-966	Ward's Precision Balances	Weighing Capacity: 2200 g, Readability: 0.01g	\$ 1,079.00	6	\$ 6,474.00
						\$ 7,848.00

Grand total	\$ 25,333.80
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LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

FOR REIMBURSEMENT: List payee name & ssn.

TAX ID#

SUGGESTED VENDOR **pasco.com**

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NAME OF STAFF MEMBER	DATE WRITTEN	DATE REQUIRED	DIVISION/ DEPARTMENT	For inventory purposes include room # where	RETURN COPY OF REQUISITION TO:
Andrew Lozano	9/12/2019	12/31/2019	STEM	1824	L. Cross, A. Lozano

DESCRIPTION (PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)

DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED COST
ME-6824 Mini Launcher Spares Kit - ME-6824		2	\$ 60.00	\$ 120.00
ME-9377A Picket Fence - ME-9377A		16	\$ 10.00	\$ 160.00
ME-8999 IDS Spring Kit ME-8999		3	\$ 35.00	\$ 105.00
ME-5703 Pasco Dynamic System- track, carts accessories		16	\$ 300.00	\$ 4,800.00
ME-9774 Rotational Inertia Set - ME-9774		8	\$ 180.00	\$ 1,440.00
ME-8950A Complete Rotational System - ME-8950A		8	\$ 975.00	\$ 7,800.00
ME-1235 PASCO Stopwatch, 10-pack - ME-1235		1	\$ 295.00	\$ 295.00
SF-9069 Electroscop - SF-9069		6	\$ 200.00	\$ 1,200.00
SE-7342 Tuning Fork Set - SE-7342		8	\$ 80.00	\$ 640.00
SE-9446 Test Tube-Utility Clamp - SE-9446		16	\$ 18.00	\$ 288.00

Deliver To, include room # (optional):

Room 1824

Vendor Information/ Remit To:

Comments: Physics

Instructional Equipment Request: Engineering

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 *Juanito 9/12/19* Dean/ VP/ President

Subtotal	\$	16,848.00
Tax	\$	0.0950
Shipping (if available):	\$	1,600.56
TOTAL COST	\$	18,448.56

Business Office



YOUR CART



CONTINUE SHOPPING

Your cart

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Cart ID: 3055394

Date: 09-12-19

Customer ID: 14606742

Description	SHOW DETAIL	Qty	Price *	TOTAL
▶ SF-9069	Electroscope	<input type="text" value="6"/> Remove ▶ ACTIONS	\$200.00	\$1,200.00
▶ ME-6824	Mini Launcher Spares Kit	<input type="text" value="2"/> Remove ▶ ACTIONS	\$60.00	\$120.00
▶ ME-9377A	Picket Fence	<input type="text" value="16"/> Remove ▶ ACTIONS	\$10.00	\$160.00
▶ ME-8999	IDS Spring Kit	<input type="text" value="3"/> Remove ▶ ACTIONS	\$35.00	\$105.00
▶ ME-5703	Basic PAScar Metal Track 2.2m System	<input type="text" value="16"/> Remove ▶ ACTIONS	\$300.00	\$4,800.00
▶ ME-9774	Rotational Inertia Set	<input type="text" value="8"/> Remove ▶ ACTIONS	\$180.00	\$1,440.00
▶ ME-8950A	Complete Rotational System	<input type="text" value="8"/> Remove ▶ ACTIONS	\$975.00	\$7,800.00
▶ ME-1235	PASCO Stopwatch, 10-pack	<input type="text" value="1"/> Remove ▶ ACTIONS	\$295.00	\$295.00
▶ SE-7342	Tuning Fork Set	<input type="text" value="8"/> Remove ▶ ACTIONS	\$80.00	\$640.00
▶ SE-9446	Test Tube-Utility Clamp	<input type="text" value="16"/> Remove ▶ ACTIONS	\$18.00	\$288.00

QUICKADD:

[ADD](#)

*** All displayed prices are for US Educational Institutions only.**

** Due to changing tax laws and rates, the taxes shown on this quote may differ from actual taxes charged at order processing.

Estimated Shipping Weight:
58.60 lbs = 26.58 kg

Estimated Shipping Volume:
4.02 CBF = 0.11 CBM

UPDATE

SubTotal: \$16,848.00

CONTINUE SHOPPING

NEXT STEP

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LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

FOR REIMBURSEMENT: List payee name & ssn. Amazon.com TAX ID#

SUGGESTED VENDOR: Andrew Lozano DATE WRITTEN: 9/12/2019 DATE REQUIRED: 12/31/2019 DIVISION/DEPARTMENT: STEM For inventory purposes include room # where equipment will reside: 1824 RETURN COPY OF REQUISITION TO: L. Cross, A. Lozano

DESCRIPTION	(PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)	UNIT	QTY	UNIT PRICE	EXTENDED COST
B008C4RVE	Corning Pyrex Corning Beaker Set (Set of 5)		6	\$ 40.32	\$ 241.92
B011WQ5K9K	VIZ-PRO Magnetic Whiteboard/Dry Erase Board, 48 X 36 Inches, Silver Aluminium Frame		3	\$56.80	\$ 170.40
B072KC4JF5	MulMark 26ft Measuring Tape Measure by Imperial Inch Metric Scale		12	\$13.99	\$ 167.88
B00004T7T1	General Tools 790-8 Hexagon Steel Plumb Bob, 8 Ounce		8	\$7.20	\$ 57.60
				\$ -	\$ -
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				\$ -	\$ -
				\$ -	\$ -
Vendor Information/ Remit To:					
on file					
Comments: Physics					
Instructional Equipment Request: Engineering					
No Substitutes					
<i>Original invoices and receipts must be attached for payment. Include current taxes unless incorporated in price.</i>					
ACCT #					
FUND					
ORG					
ACCT					
PROGRAM					
APPROVALS					
Supervisor/ Coordinator/ Director					
Dean/ VP/ President					

VP ACADemics SERVICES	Deliver To, include room # (optional):	
LAS POSITAS COLLEGE	Room 1824	
	Subtotal	\$ 637.80
	Tax	\$ 0.0950
	Shipping (if available):	\$ 0.00
	TOTAL COST	\$ 698.39

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Shopping Cart

Price \$13.99

MuWark 26ft Measuring Tape Measure by Imperial Inch Metric Scale with Dual-

side Metal Blade,Magnetic Tip Hook and Shock Absorbent Case-for

Construction,Contractor,Carpenter,Architect,Woodworking

In Stock

This is a gift Learn more

Delete Save for later

12

Compare with similar items

\$56.80

VIZ-PRO Magnetic Whiteboard/Dry Erase Board, 48 X 36 Inches, Silver Aluminium

Frame

In Stock

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Delete Save for later

Qty: 3

Compare with similar items

\$7.20

General Tools 790-8 Hexagon Steel Plumb Bob, 8 Ounce

In Stock

This is a gift Learn more

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Qty: 8

Compare with similar items

\$40.32

Corning Pyrex Griffin Low Form Corning Baker Set (Set of 5)

Only 8 left in stock - order soon.

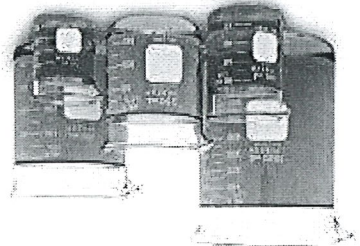
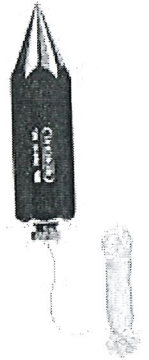
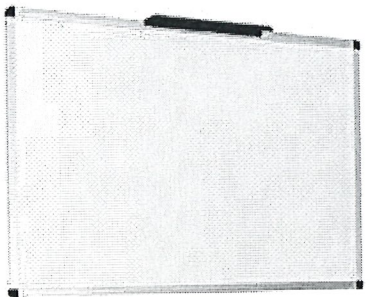
Shipped from: Scientific Strategies

Gift options not available. Learn more

Delete Save for later

Qty: 6

Compare with similar items



Subtotal (29 items): **\$637.80**

LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

FOR REIMBURSEMENT: List payee name & ssn.

TAX ID#

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SUGGESTED VENDOR	Wards Science			
NAME OF STAFF MEMBER	DATE WRITTEN	DATE REQUIRED	DIVISION/ DEPARTMENT	RETURN COPY of REQUISITION TO:
Andrew Lozano	9/12/2019	12/31/2019	STEM	L. Cross, A. Lozano
For inventory purposes include room # where equipment will reside:				1824

DESCRIPTION	(PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)	UNIT	QTY	UNIT PRICE	EXTENDED COST
470304-046	Slotted Weight Set of 12, Aluminum		24	\$ 13.25	\$ 318.00
470003-584	Hooked Weights		12	\$ 88.00	\$ 1,056.00
470217-966	Ward's Precision Balances		6	\$ 1,079.00	\$ 6,474.00
				\$ -	-
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				\$ -	-
				\$ -	-

Deliver To, include room # (optional):

Room 1824

Vendor Information/ Remit To:		Subtotal	\$	7,848.00
on file		Tax	\$ 0.0950	\$ 745.56
		Shipping (if available):		\$0.00

Instructional Equipment Request: Engineering

No Substitutes

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

Business Office **TOTAL COST \$ 8,593.56**

ACCOUNT #	FUND	ORG	ACCT	PROGRAM
APPROVALS	Supervisor/ Coordinator/ Director		Dean/ VP/ President	

Handwritten: Mark to 9/12/19



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42 items / \$7,853.70 Sign In Quick Shop

Print... Email...

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Cart Preferences Shipping Account Number: Edit Address

Estimated Order Total : \$7,853.70

Description	Item #	Unit	Qty	Your Price	Extended Price	Remove
<input type="checkbox"/> WEIGHT SET SLOTTED ALUMINIUM SET OF 12	470304-046	EA	24	\$13.25	\$318.00	<input type="checkbox"/>
<input type="checkbox"/> WEIGHT HOOKED 10G TO 1000G	470003-584	KT	12	\$88.00	\$1,056.00	<input type="checkbox"/>
<input type="checkbox"/> BALANCE PRECISION WARDS 2100G X 0.01G	470217-966	EA	6	\$1,079.95	\$6,479.70	<input type="checkbox"/>

Clear Cart Update Checkout

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- Build your cart from Shopping Lists
- Frequently Ordered Items
- Upload Products to Cart (help)
- Choose File
- No file chosen
- Upload

Item Subtotal = \$7,853.70
 Estimated Shipping = \$0.00
 Hazard = \$0.00
 Special Services / Handling / Fuel Surcharge = \$0.00
 Estimated Order Total = **\$7,853.70**
 Need tax exempt status? Upgrade to a permanent account to submit your tax exemption documentation.

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Please note that you will receive an order acknowledgment after order placement that contains updated product delivery

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