INSTRUCTIONAL EQUIPMENT REQUEST 2021-2022

LPC ADMINISTRATIVE SERVICES - REQUISTION INFORMATION PAGE

Internal Use

IE #:2021 -17

Total $: 2,955.00

Requester Name: Jennifer Siders, Eric Harpell **Division Name:** Science, Technology, Eng. & Math

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

SECTION 1: EQUIPMENT DESCRIPTION

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:

Unistellar has developed an advanced digital telescope, eVscope eQuinox, that would allow students to observe deep sky objects from the LPC campus without having to go to a remote dark site. The telescope has a built in light sensor with live accumulation, so the longer you leave it on a particular object, the better the image appears. This is how it allows students to see faint objects that would usually require astrophotography equipment, skills and hours of camera time to produce images of galaxies and nebulae. The eVscope is compact and is easy to set up. Many of the telescopes we currently have are too large to be set up by a single person and take considerable time to set up and align. And once set up the views through the traditional telescopes are impaired by light pollution from campus and city lights. The eVscope has autonomous field detection and aligns itself in under 1 minute, making it a very user friendly telescope. The eVscope also comes with its own tripod.

The eQuinox digital telescope would dramatically increase the number of astronomical objects that students could observe from campus and would allow for online observing labs if necessary. Students in wheelchairs, or otherwise unable to stand at a telescope would be able to control the telescope and view the images on their own device (phone or tablet).

Equipment Location Building: L1800 **Room:** 1824

Location Comments:

The eQuinox telescope and tripod fits in a backpack which could easily be stored inany or the following: the physics and Engineering store room adjacent to 1824, in the downstairs storeroom 1801, or in the the third floor observing storage area in building 1800.

SECTION 1: EQUIPMENT DESCRIPTION (continued)

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

Although there is no legal requirement, there is a safety concern. Moving exsiting telescopes and loading them into vehicles for dark sky viewing can be dangerous as the scopes weigh approximately 50 lbs and are bulky. Tripods are also quite large, heavy, and bulky. This scope is considerably smaller, lighter, and more portable reducing the likelihood of injury that can and will eventually occur when one instructor, without assistance, is moving the larger scopes. Note that since astronomy observations take place at night, there is generally no lab tech support for moving and replacing telescopes.

SECTION 2: LPC MISSION STATEMENT AND LPC PLANNING PRIORITIES

LPC MISSION STATEMENT:

Las Positas College provides an inclusive, learning-centered, equity-focused environment that offers educational opportunities and support for completion of students' transfer, degree, and career-technical goals while promoting life-long learning.

LPC PLANNING PRIORITIES:

- **Implement the integration of all ACCJC standards throughout campus structure and processes.**
- **Establish a knowledge base and an appreciation for equity; create a sense of urgency about moving toward equity; institutionalize equity in decision-making, assessment, and accountability; and build capacity to resolve inequities.**
- **Increase student success and completion through change in college practices and processes: coordinating needed academic support, removing barriers, and supporting focused professional development across the campus.**

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

Las Positas College provides an inclusive, learning-centered, equity-focused environment that offers educational
opportunities and support for completion of students' transfer, degree, and career-technical goals while promoting lifelong learning.

This purchase will directly support the mission statement for an "equity focused environment that offers opportunities and support for completion of students transfer, degree, and career-technical goals while promoting lifelong learning. "
Currently, access to telescopic images is limited to students who can attend evening astronomy labs, and this includes only students who are free in the evenings, and able to drive, and walk to dark sky locations on and around campus. This is not an entirely equitable situation. However, with the eQuinox digital telescope students who have mobility issues, who cannot attend evening labs, and who have visual problems will be able to participate in telescope observations using their own smart phones or computers. Since this technology is so convenient for students, it can also be used in lecture settings when the students woud otherwise have to line up in a group fo 40 or more to look through a single scope. Also, in times of Covid, this will greatly reduce the students proximity to one another and relieve crowding around telescopes.

More specifically, the eQuinox digital telescope would enable students to observe many more astronomical objects during astronomy labs and save the images to their own devices. The eQuinox would also enable interested students to participate in citizen science projects, observing and detecting asteroids and exoplanets.
The fact that students will observe the images on their own devices, a lab partners, or the instructors ipad, will make it much easier than crowding around an eyepiece - which can be very hard to observe through if the person requires glasses. The live image from the telescope can also be shared with students over zoom, allowing students from home (perhaps because they are sick, quarantined or at high risk of covid) to also participate in lab. Trying to look through a telescope eyepiece from a wheelchair would be nearly impossible, the eQuinox telescope would make live astronomical viewing and even control of the telescope accessible.

SECTION 3: EDUCATIONAL ITEMS – PROGRAM REVIEW

Specify the educational programs this equipment supports:

The eQuinox telescope would be used primarily in ASTR30L, introduction to astronomy lab, and would be used almost every week during the school semesters. ASTR10 and 20 could also make use of the telescope for a night of stargazing or simply allow the instructor to demonstrate and describe celestial objects in real time. The telescope could also be used for education outreach at science events in the area, such as the Livermore Innovation Fair and Livermore Science Odyssey. Students intreated in Honors projects could also use the telescope to perform reserch projects and/ or participte in citizen science projects.

Will this equipment be a part of your upcoming Program Review or was it included last year? Please explain using the exact words from your Program Review. If not, explain why.

The telescope described here was not described in our previous program reivew as it was not available at that time. However, the problems with read time observing and instructional support were addressed. In the Facilities section of the Program review, the following need was discussed: Dark Sky Site and Storage Shed for telescopes:

"For over a decade, the astronomy program has needed a vehicle-accessible dark sky site near campus. The current telescope dome is unusable with the lights from the nearby athletic fields. While building a new telescope dome may be impossible, an easier task would be to simply pave a road to a dark location in the hills surrounding campus, and build a small storage shed at the site to store the telescopes"

Since construction on campus is ongoing and there has been no progress in finding a dark sky site, this portable system will make it easier to move to a dark site on the edge of campus or off campus, and allow students to access images on their own devices.

Also, in Facilities, the need for "Better Coordination with lab technician was discussed," in which we described the lack of time the lab tech is available to assist in Physics and Astronomy. Having such a portable, easy to use system such as the eQuinox telescope will require little or no asstance from the lab tech, and thus will free up the lab tech for other tasks.

SECTION 4: TEACHING AND LEARNING

In detail describe evidence and data that equipment provides much needed benefit and enhancement to teaching beyond current capabilities.

The eQuinox telescope is lightweight and portable, easy to set up for one person and aligns itself in under 1 minute. Many of the telescopes LPC currently has are very large and heavy, taking 2-3 people to move and assemble. They also take some time to align and most of them need updated. Being portable also means the eQuinoxwould be easy to take to outreach events, like the Livermore Science Odyssey. Using the telescopes already owned by LPC, we can observe only the brightest of objects while remaining on campus. Objects like Jupiter, Saturn and the moon are easy to see with the current telescopes. But star clusters, nebulae and galaxies are washed out because of light pollution. The eQuinox telescope with its image averaging capability would allow students to observe fainter deep sky objects without leaving campus. Unistellar quotes that objects with a magnitude of 16 are visible in medium quality night skies with less than a minute of averaging. This summer we were able to very faintly see the Ring Nebula on campus which has a magnitude of 8.8 (lower numbers mean brighter objects, so its harder to see objects with higher magnitudes). The eQuinox would give a much better view of this nebula and over 200 other fainter objects that we can not currently see at all.

This telescope has another major advantage, in that there is no eye piece. To view the images, students, faculty connect to the telescope through wifi to their devices (both iOS and Android systems). Upto 10 devices can connect at a time so students can safely share the telescope at the same time, without crowding around it. The observations can also be easily saved by students without having to invest in astrophotography equipment. We do not currently have an easy way for students to create and save images through the telescopes.

Observations with an eQuinox telescope can be shared via zoom if the lab has to be done online.

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

The Unistellar Network is involved in citizen science, detecting asteroids and exoplanets, students interested in these projects would be able to observe occultation events and share their observations with the scientific community. The eQuinox telescope expands the number of astronomical objects that we could view from campus to include deep sky objects like nebulae and galaxies. Star clusters would no longer be gray fuzzies but thousands of individual stars. The fact that students view the images from their own devices, makes it easier to maintain social distancing during observing and even allows for online observing for astronomy labs if necessary. One person can control the telescope while 9 others can connect and see the images at the same time. This will allow us to observe many more objects during one lab session, since students will not have to wait their turn to briefly look through the eye piece. They will be able to save the images on their devices and study them at their leisure .

Because the scope is easy to move and set up, it could be used in lecture classes (in-person and online classes) as well as the astronomy lab class, allowing many more students to enjoy the live views of astronomical objects.

Each academic year, this equipment will impact: 13 **# of classes/sections** 500 **# of students**

SECTION 5: OUTCOMES (SLOs)

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

One of the SLO's for ASTR30L (Intro Astronomy Lab) is that students should be able to perform naked eye and telescopic observations of objects in the night sky. The eQuinox digital telescope would allow students to view 200 more astronomical objects that are currently not visible with current equipment on campus. Because the telescope is easier to set up and 10 people can view the images simultaneously students could perform more observations in one lab session and spend less time waiting for their turn at a telescope eye piece.

The eQuinox telescope will also allow students to save images from an observing session which will allow them to analyze their observations more thoroughly and study their images after the lab session is over.

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

What is the potential life span of the requested equipment?

The eQuinox is the lastest in digital telescope design (Just came out in 2021) and can be updated through the app. There are no accessories to purchase or replace. I would guess if taken care of it could used for at least 10 years.

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 new storage requirements.

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.

No additional costs associated with storage, the eQuinox is compact and would be easy to store in the current science storage room.

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.)

There are no accessories to replace or update. The software can be updated via the app used to control the telescope. So no on-going operating costs.

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

This telescope rsquires very little power to operate, and will not need any accompanying structures or lighting. So, very little energy will be used, especially in comparison with larger telescopes.
It is also so portable that it can be carried to a dark location on campus not easily accessable by vechicle, requiring less gasoline and therefore less Carbon emissions.

Part A: Initial Start-up Costs

Item	Cost	Comments
Equipment or Materials	$2699	
Taxes (9.5%)	$256	
Shipping or Delivery Charge	$0	
Installation Costs *	$0	
Miscellaneous Costs:		
Facilities Modifications	$0	
Operator Training	$0	
Maintenance & Repair Training	$0	
Storage	$0	
Other: _____		
Vendor Discount		
Grand Total:	$2955	

Part B: On-Going Annual Operating Costs

Item	Cost	Comments
Annual Service or Maintenance	$0	
Estimated Parts Replacement Per Year	$0	
Outside Standardization or Calibration Costs	$0	
Storage Costs	$0	
New Supply Costs	$0	
Maintenance & Repair Labor	$0	
Licensing or Software	$0	
Other: _____		
Annual Operating Costs:	$0	

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

There should be no on-going operating costs for this telescope.

Part C: Incremental Labor Costs

OPERATOR:

Indicate the key operator: Jennifer Siders, Eric Harpell

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: 5 hours

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: 0

SIGNATURE 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 will be reviewed by the LPC IT Department.***

REQUESTOR	DIVISION DEAN/MANAGER	ADMIN SERVICES, VP
Eric N Harpell	Nan Ho	
Date 9/7/21	Date 9/8/21	Date

Admin Services will route as needed

IT MANAGER	M&O DIRECTOR
	Walter Blevins Digitally signed by Walter Blevins DN: cn=Walter Blevins, o, ou, email=wblevins@clpccd.org, c=US Date: 2022.02.04 16:14:24 -08'00'
Date	Date

Unistellar CORP
c/o The Archery
498 Alabama Street
San Francisco CA 94110
United States

Adresse de facturation:
Las Positas College, Andrew Lozano
3000 Campus Hill Drive
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+1 925-424-1339

Adresse de livraison:
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United States

Devis N° S00328

Date du devis : 03/09/2021

Vendeur : Pauline LEROUX

Description	Quantité	Prix unitaire	Taxes	Montant
[EQUINOX] eQuinox	1,000	2 699,00		$ 2 699,00
[BACKPACK] UNISTELLAR EVSCOPE PADDED BACKPACK	1,000	0,00		$ 0,00
[Delivery_007] Frais de livraison gratuit	1,000	0,00		$ 0,00

education offer applied

Sous-total	$ 2 699,00
Total	$ 2 699,00

Montant à payer par virement bancaire
Bank of America
Numéro de compte : 483068042740
Code bancaire : 026009593

Conditions de règlement : Paiement à réception

LAS POSITAS COLLEGE

Office of Administrative Services

Requisition Request Form

(Wait 5-10s) Reset Submit

R_____-_____

Fiscal Year	Vendor ID #	Vendor Name	Date Required
2021-2022		Unistellar Corp	

Deliver To	Room #	Return Copy of Requisition To
Andrew Lozano	1824	lozano/cross

Seq	Item #	Description	Qty	Unit Price	Extended Cost
1	eQuinox	eQuinox	1	$ 2,699.00	$ 2,699.00
2		unistellar evscope backpack	1	$ 0.00	$ 0.00
3					$ 0.00
4					$ 0.00
5					$ 0.00
6					$ 0.00
7					$ 0.00
8					$ 0.00
9					$ 0.00
10					$ 0.00
11					$ 0.00
12					$ 0.00
13					$ 0.00
14					$ 0.00
15					$ 0.00

Comments		
	Subtotal	$ 2,699.00
	9.50% **Tax**	$ 256.00
	Shipping	
	Total Cost	$ 2,955.00

FOAP to be Charged	%	Amount
- - -	100	
FUND ORG ACCOUNT PROGRAM		
- - -		
FUND ORG ACCOUNT PROGRAM		

Robin Rehagen
Requestor (print name) *Date*

Nan Ho Digitally signed by Nan Ho Date: 2021.09.22 15:17:49 -07'00' 9/22/21
Dean (signature) *Date*

Coordinator/Manager (signature) *Date*

Vice President (signature) *Date*

OFFICE OF ADMINISTRATIVE SERVICES USE ONLY

Reviewed: _____ *Administrative Services*
Verified: _____ *Administrative Services Officer*
Approved: _____ *VP, Administrative Services*

PO Number: _____ Budget Transfer #: _____ Entered: _____

TR 4/6/20

Unistellar CORP
c/o The Archery
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San Francisco CA 94110
United States

Invoicing Address:
Las Positas College, Andrew Lozano
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Shipping Address:
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+1 925-424-1339

Las Positas College, Andrew Lozano
3000 Campus Hill Drive
Livermore, CA 94551
United States

Quotation # S00328

Quotation Date:
09/03/2021

Salesperson:
Pauline LEROUX

Description	Quantity	Unit Price	Taxes	Amount
[EQUINOX] eQuinox	1.000 Units	2,699.00		$ 2,699.00
[BACKPACK] UNISTELLAR EVSCOPE PADDED BACKPACK	1.000 Units	0.00		$ 0.00
[Delivery_007] Frais de livraison gratuit	1.000 Units	0.00		$ 0.00

education offer applied

Subtotal	$ 2,699.00
Total	$ 2,699.00

Montant à payer par virement bancaire
Bank of America
Numéro de compte : 483068042740
Code bancaire : 026009593

Payment terms: Payment on delivery