



Program Review - Overall Report

Instructional: Physics

Data Review

Data Review

2021 - 2024

Overall Trends

What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Success and Retention

Over the past three years, we have serviced approximately 370-400 students each year. Students in our physics courses have increased in success rates from 67.1% to 77.8% and increase in retention rate from 76.6% to 85.9%.

Program of Study and Student Educational Plan

The number of students who have declared Physics as a major has increased from 44 students in the 2017-2018 academic year to 69 students in the 2019-2020 academic year, showing a 56% growth for this program. Of these students, 10% have met with a counselor and developed an education plan.

Program Awards

The number of students who have completed an ADT degree in Physics increased from 17 students in the 2018-2019 academic year to 34 students in the 2019-2021 academic year. This represents significant growth in our program. Based on the data from the Program of Study, the expected number of students who should have earned a degree in 2019-2020 would be approximately 13.8 students (20% of our Program of Study N = 69) and we awarded 21 degrees that year demonstrating no pipeline issues within physics.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?

Data Review

Success

In the past three years, we have made improvements in addressing the Success rates of all of our students, especially our underrepresented students. We have addressed and closed one notable equity gap among our Hispanic students' success rates compared to all students' success rates.

For our students who identify as African American, Native American, and Pacific Islander, we have $N < 10$ students for any given year and therefore show dramatic swings in success rate from year to year.

Unfortunately, we cannot identify a statistical difference between their disaggregated success rate and the overall success rate for our physics courses.

Retention

Over the past three academic years, the retention rate of our Asian students has outpaced that of the overall retention rate.

The retention rate of our Hispanic students has been increasing over the last three academic years and is closing the equity gap. In the 2020-2021 AY, our retention of Hispanic students was on par with the overall retention rate across all student groups.

	2018-2019 AY		2019-2020 AY		2020-2021 AY	
	Retention	Overall Retention	Retention	Overall Retention	Retention	Overall
Asian	93%	76.6%	91.7%	81.9%	88.3%	85.9%
Hispanic	74.2%	76.6%	76.2%	81.9%	85.6%	85.9%

For our students who identify as African American, Native American, and Pacific Islander, we have $N < 10$ students for any given year and therefore show dramatic swings in retention percentage from year to year. Unfortunately, we cannot identify a statistical difference between their disaggregated retention rate and the overall retention rate for our physics courses.

Program of Study and Awards

Over the past three academic years, we have maintained the 20% benchmark of degree awards for our students overall. Disaggregated into underrepresented groups, this trend is maintained for both Asian and Hispanic students except for the 2019-2020 AY. The effect in that year may likely have been due to COVID, forcing students to go online with little preparation. In addition, traditionally marginalized students may not have had access to the technology required to continue an academic curriculum from home in Spring 2020, affecting the degree awards in that year. From 2017-2020, there were no students who identified as Black, Pacific Islander, 2+ Race who also declared Physics as a major - they have therefore been excluded from this section.

Data Review

	2018-2019 AY	2019-2020 AY	2020-2021 AY
	Program of Study		
Asian	9	4	6
Hispanic	23	32	31
	Degree Awards (% of Program of Study)		
Asian	55%	100%	83%
Hispanic	39%	13%	35%

Educational Planning

6 of the 11 total students who completed an education plan between the 2017-2018 AY and the 2019-2020 AY identified as Hispanic or LatinX. The remaining 5 students identified as White/Caucasian. No students who identified as Asian completed an educational plan.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?

There are two notable equity gaps identified in the past three years. The first is that we need to take active steps towards encouraging all of our physics majors to develop a credit education plan including:

- Adding announcements to Canvas for Physics 4A, 4B, and 4C (our major's courses) reminding students about the need to meet with a counselor.
- Check In's with our STEM Counselors at the midpoint of the Fall and Spring semesters to generate a list of students that have yet to meet with a counselor.
- Targeted and personalized emails to students who have not updated their education plan at least once per year.

Is there a resource request associated with this Data Review? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

No

Assessment Review

2021 - 2024

Section 1: SLO Assessment Status (Based on Dashboard - Assessment Status)

Which Disciplines are included in this Assessment?

Physics

What percent of SLOs in the disciplines you identified above have been assessed?

100% of our SLO's in all Physics courses were assessed in the Fall 2017 - Fall 2021 cycle.

Which SLOs have not been assessed and why? Identify both the Course and the associated SLO(s).

None

Section 2: Mapping Status (Based on Dashboard - Mapping Status)

Are all SLOs mapped to at least one PLO?

Yes

If all SLOs are not mapped to at least one PLOs, please explain why.

100% of our SLO's are mapped onto at least one PLO.

Are the appropriate SLOs mapped to GELOs? (If you have a course that is listed in any general education area, it should have at least one SLO mapped to at least one GELO)

Yes

If the appropriate SLOs are not mapped to GELOs, please explain why.

100% of our SLO's are mapped onto at least one GELO.

Section 3: PLO Analysis (Based on Dashboard - Analysis: PLO Direct Assessment)

Which Programs are included in this Assessment?

Physics

Please identify the PLO(s) - and name the associated Program(s) - that achieved benchmarks.

PLO - 2: Perform various scientific experiments and to analyze data to check agreement with theoretical predictions.

To what do you attribute this success?

Students complete 9-12 laboratory experiments in each class that has a lab component (2A/B, 4A,B,C, 11) that predominately involve the set up of an experiment to confirm an existing law or experimentally confirm theoretically derived values.

Please identify the PLO(s) - and name the associated Program(s) - that did not achieve benchmarks.

PLO-1: Apply appropriate physical laws and mathematical techniques to analyze various physical situations.

If there are PLOs that did not achieve benchmarks, what do you plan on doing to improve benchmark attainment?

One step that we are taking to improve on reaching the appropriate benchmark for PLO-1 is to give pre-post conceptual assessments (all of which have been validated and are currently in use at multiple institutions across the country) in each course to identify if there are any content areas that are students are specifically struggling with. Once we have identified problematic content areas, we will meet as a discipline to discuss best practices and the latest in physics education research on misconceptions in that topic area.

Assessment Review

Section 4: Alignment to Career and Transfer

Describe the process used in this area to ensure programs (PLOs) align with career and transfer needs.

All PLO's are revisited yearly as a district disciplines to ensure that they align with career and transfer needs.

Describe the activities, projects, and opportunities this program offers to support experiential learning and alignment of programs to career and transfer (e.g. capstone projects, portfolios, service-learning opportunities).

Within the majors courses (4A/B/C), contains 54 hours of laboratory experiments which prepare students for upper level laboratory courses upon transfer. In addition, the skills acquired in the laboratory are transferable to a variety of careers including technicians, and research and development careers within industry.

Without looking at your current PLOs, describe some program outcomes which would best help your students continue on the path towards their workforce and transfer goals (e.g. subject matter expertise, hands on experience, partnerships, etc.).

Within the lecture portion of our courses, students must get a solid understanding of fundamental physical laws – such as Newtonian Mechanics, Energy, and Waves. These three core ideas are seen repeatedly in different contexts throughout our major's courses and serve as the foundation for all upper-level physics courses at any institution. Therefore, it is critical that students not only understand mechanics, energy, and waves but can connect those concepts across a variety of contexts.

In order to set up our majors for success upon transfer or as they enter the workforce within the lab portion of our courses – it is critical that students get hands-on experience with the standard measurement tools, such as calipers, multimeters, oscilloscopes, and function generators that they would likely see in upper-level courses, internships, and future jobs. In addition, data analysis plays a prominent role in the lab; having students learn and apply a variety of data analysis techniques and error calculations using a common platform (such as Microsoft Excel) reinforces the transferability of their data analysis skills.

Review current PLOs. Do the outcomes listed above align with the current program outcomes?

"PLO-1: Apply appropriate physical laws and mathematical techniques to analyze various physical situations

"PLO-2 Perform various scientific experiments and to analyze data to check agreement with theoretical predictions

Yes - our outcomes described above align with our current PLO's.

Program Review: Part 1

EMP GOAL 1. Expand college access by increasing both headcount and full-time equivalent students (FTES).

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

We are currently offering one section of Physics 2A and Physics 2B each semester. We have now done this for Fall 2021 and Spring 2022 and plan to continue to do so. By increasing our course offerings for the 2-series, we reduce the backlog of students waiting for key classes for degree completion and transfer, thereby increasing efficiency and decreasing the time to degree.

What are your plans/goals (3-year) regarding this goal?

To address EMP 1, we are going to update the Physics Discipline webpage to increase our advertising for taking physics classes at Norco. For example, including pictures of our staff, students doing an engaging physics lab experiment, and highlighting Physics alumni. In addition, including information about course offerings, specifically highlighting zero-cost textbook courses and online sections will help prospective students learn about their options.

To increase our accessibility for students, we are in the process of beginning to offer regular online sections of both Physical Science 1 and Physics 10, both of which service non-STEM major students. Based on a survey Lindsay Owens gave in her online Physics 10, and Physical Science 1 courses in Fall 2021, 50% of the students prefer online course options for accessibility and flexibility purposes. This static was confirmed by Kimberly Bell in the Disability Resource Center.

In addition, we need to offer more sections during the morning and early afternoon. Our enrollment data shows that students prefer courses offered at these times and do not want night-time course offerings. In order to service the needs of our students and keep their time to degree on target, our class offerings should reflect the times are students are most available.

Both of these efforts will contribute to the broader goal of growing the physics program in terms of the total number of students we service and of students declaring physics as their major.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Based on a survey Lindsay Owens gave in her online Physics 10, and Physical Science 1 courses (one section each) in Fall 2021, 50% of the students prefer online course options for accessibility and flexibility. This static was confirmed by Kimberly Bell in the Disability Resource Center. Finally, our online section of Physics 10 in the Spring 2022 semester almost reached capacity during enrollment before the start of the semester. Additional data would need to be collected to determine if DRC students are opting for online course offerings (for accessibility purposes) at a greater rate than students who do not utilize the DRC.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review: Part 1

EMP GOAL 2. Implement Guided Pathways framework.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

We are currently offering one section of Physics 2A and Physics 2B each semester. We have now done this for Fall 2021 and Spring 2022 and plan to continue to do so. By increasing our course offerings for the 2-series, we reduce the backlog of students waiting for key classes for degree completion and transfer, thereby increasing efficiency and decreasing the time to degree.

What are your plans/goals (3-year) regarding this goal?

We intend to monitor enrollment data in our courses to determine if an increase in course (or section) offerings is warranted. For example, in the Spring 2022 semester, we added a third section of 4B to accommodate approximately 20 students on the waitlist between the existing two sections.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

In the Spring 2022 semester, we added a third section of 4B to accommodate approximately 20 students who were on the waitlist between the existing two sections. That same semester, we also had 12 students on the waitlist for 2A. For courses with 15 or more students on the waitlist combined across all existing sections would justify the addition of a new section.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 3. Close all student equity gaps.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

To address EMP Goal 3 we have been incorporating active learning techniques in our teaching, which have been shown in the research to address equity gaps. In addition, we have adopted Openstax (OER) textbooks in 2A/2B. And are requesting resources for extra materials (i.e., calculators and a classroom set of textbooks) to provide students in financial need with the necessary tools and resources for success.

What are your plans/goals (3-year) regarding this goal?

To continue addressing this goal moving forward, we want to continue to support diversity in our faculty to reflect the demographics of our students. In addition, we want to increase access to resources for success. For example, by encouraging students to become tutors for future semesters, we would increase the number of available physics tutors at Norco. Also, by providing students with a classroom set of textbooks we would be removing that financial burden while still giving students access to high quality materials.

We will also see to collaboration with activities and clubs that promote physics to a more general audience. We also want to partner with groups that focus on DEI (Umoja, Puente, MoC) to come in as guest speakers in the classroom.

Program Review: Part 1

To increase our accessibility for students, we are in the process of beginning to offer regular online sections of both Physical Science 1 and Physics 10, both of which service non-STEM major students.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Discipline-Level: PHY						Course-Level: F
Gender	Enrolled	Retained	Retention Rate	DI	Close Gap	Gender
Female	448	353	78.8%	0	5	Female
African American	23	17	73.9%	0	2	African American
Asian	72	63	87.5%	0	0	Asian
Hispanic	232	177	76.3%	0	9	Hispanic
Native American	1	0	0.0%	0	1	Native American
Pacific Islander	1	0	0.0%	0	1	Pacific Islander
Two or More	10	8	80.0%	0	0	Two or More
Unknown	2	2	100.0%	0	0	Unknown
White	107	86	80.4%	0	0	White
Male	1,109	886	79.9%	0	0	Male
African American	26	21	80.8%	0	0	African American
Asian	227	204	89.9%	0	0	Asian
Hispanic	550	417	75.8%	1	32	Hispanic
Native American	2	2	100.0%	0	0	Native American
Pacific Islander	6	5	83.3%	0	0	Pacific Islander
Two or More	15	9	60.0%	0	3	Two or More
Unknown	9	9	100.0%	0	0	Unknown
White	274	219	79.9%	0	0	White
Total	1,557	1,239	79.6%	0	0	Total

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review: Part 1

EMP GOAL 4. Implement professional development around Guided Pathways and equity framework; foster a culture of ongoing improvement.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Our commitment to professional development around DEI is currently being exemplified by Aaron Roy serving on DEI committee at Norco College. In addition, Lindsay Owens participates in DEI as part of the American Association of Physics Teachers (AAPT) which has its own DEI taskforce, webinars, and parallel sessions at the national meetings. Lindsay attends the national meeting every year and also presents her own DEI research.

What are your plans/goals (3-year) regarding this goal?

Aaron will continue to serve on DEI committee and participate in events while Lindsay will continue as an active contributor to DEI work within the AAPT community.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

No.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 5. Reduce working poverty and the skills gap.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

We are requesting resources for extra materials (i.e., calculators) to provide extra resources for students in financial need. Adopted Openstax (free) textbook in select sections of courses. Learning to interact with various computer software and equipment (graphs on excel in the labs).

What are your plans/goals (3-year) regarding this goal?

Apply for S-STEM grants.

Offering more night classes for students who have to work.

Offering online classes to reach a broader audience of students.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

No.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review: Part 1

EMP GOAL 6. Pursue, develop, & sustain collaborative partnerships.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Working with Ashlee Johnson in Engineering to tailor our lab redevelopment to address skills students need for success in engineering.

What are your plans/goals (3-year) regarding this goal?

Applied for S-STEM. Grant from Chemistry and Engineering.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

No.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

No

EMP GOAL 7. Become the regional college of choice by offering a comprehensive range of programs that prepare students for the future and meet employer workforce needs.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Developing the labs.

Trying to make Physics 2 series geared more towards health care related fields.

What are your plans/goals (3-year) regarding this goal?

Skill based labs that reflect the skills needed by employers.

Developing the labs.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

JTUPP.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review: Part 1

EMP GOAL 8. Develop institutional effectiveness and integrated planning systems and governance structures to support ongoing development and continuous improvement as we become a comprehensive college.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

N/A

What are your plans/goals (3-year) regarding this goal?

Lindsay is planning on joining the Curriculum Committee next year.

Coordination with STEM Club from Aaron.

Better coordination with chem, bio, eng, and comp sci with examples that relate to those fields from Lindsay and Aaron.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

No.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

No

EMP GOAL 9. Expand workforce to support comprehensive college and develop/sustain excellent workplace culture.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Planning process for advertisement of future assoc. faculty on CC Registry etc.

What are your plans/goals (3-year) regarding this goal?

Advertising more for assoc. faculty on predominate outlets such as CC Registry, Academic Jobs, AAPT.

Have our faculty as a whole better represent the demographics of our students.

Gives a more direct line from applicants and program.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Does it increase the number of, and diversity of applicants.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

No

Program Review: Part 1

EMP GOAL 10. Build a comprehensive and inspiring campus integrated into the region that serves as a destination for education, commerce, life, and the arts.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Nothing b/c Covid.

What are your plans/goals (3-year) regarding this goal?

Collaborate with local high schools to position Norco as a desirable option for students to begin their college careers.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Data from OIR about which schools are predominate feeders into Norco College to target our advertising efforts.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 11. Implement professional, intuitive, and technology-enhanced systems.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

Updating lab equipment to better reflect current technology used in the real world and in the workplace.

What are your plans/goals (3-year) regarding this goal?

Continue to update lab equipment to better reflect current technology used in the real world and in the workplace.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

With an assessment such as iSTAR.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 12. Develop innovative and diversified resources to build and sustain a comprehensive college and achieve its visionary goals.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

"Norco College inspires a diverse student body by an inclusive innovative approach to learning through its pathways to transfer, professional, career and technical education, certificates, and degrees." Mission Statement.

New lab curriculum to build skills that better prepare students for their careers beyond the classroom.

Program Review: Part 1

More inclusion in curriculum.

Increased enrollments of Underrepresented Minority (URM) students.

What are your plans/goals (3-year) regarding this goal?

Continued lab development.

More collaboration/partnership with local high schools to increase diversity of incoming classes to Norco.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Enrollment data disaggregated by race/gender.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review Part 2

2021 - 2024

Curriculum

Are all your courses current (within four years)?

Yes

What percentage of your courses are out of date?

0%

If you have courses that are not current, are they in the curriculum process?

N/A

For out of date courses that are not already in progress of updating, what is your plan?

N/A

Do you have proposals in progress for all the DE courses you intend to file?

Yes

Do you require help to get your courses up to date?

No

Program Review Reflections

What would make program review meaningful and relevant for your unit?

If all of our goals for our unit are met within the next 3 years.

What questions do we need to ask to understand your program plans, goals, needs?

How do we increase enrollments in our physics offerings and how do we meet the needs for this goal if it is achieved?

How do we better prepare our students for a changing landscape of technology and connectivity in the STEM fields?

What types of data do you need to support your program plans, goals, needs?

Current enrollment data versus projected growth data. Understanding of modern technology demands of employers in the STEM fields and how we can meet the needs of our students to compete in these fields.

If there are any supporting documents you would like to attach, please attach them here.

[Physics Courses Schedules 2019 onward.xlsx](#)

Resource Requests

2022 - 2023 Update

Resource Request

What resources do we already have?

We currently have one lab room dedicated to run all lab sections for all physics courses.

What resources do you need?

Additional Physics Lab Room.

Currently, we have 6 courses (2A/B, 4A/B/C, 11) that require 54 hours of lab per term, resulting in labs that run for 3 hours and 10 minutes each week. With only one lab room and the restriction of college hours on Tuesday and Thursday, we currently run labs in every morning slot, every afternoon slot, and some evenings. It is exceedingly difficult to add additional sections of physics courses as the only open time for HUM 201 is at night, and our class enrollment data from Fall 2021 and Spring 2022 semesters shows that students prefer morning and afternoon classes. To best serve the students, we need to be able to offer more courses during the morning and afternoon, which is not currently possible with our room limitations.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 10

\$ Amount Requested

500,000

Resource Type

BUDGET: Facilities Building, Remodel

Potential Funding Source(s)

General Fund

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

1

Is this request:

New

For Administrative Use Only

Funding Status

Notes

Resource Requests

2022 - 2023 Update

Resource Request

What resources do we already have?

We currently have seven oscilloscopes that are a mismatch of four different makes/models. These oscilloscopes are currently used in three different labs for 4B, and one lab for 2B.

What resources do you need?

We need to purchase 10 Tektronics TBS 1000C Digital oscilloscopes. This will ensure that all lab groups have access to an oscilloscope. In addition, providing students with oscilloscopes that have the same user interface will increase students understanding of how to use the equipment. Digital oscilloscopes are a common and foundational tool in science/engineering labs. Our 4-series students must be proficient in taking voltage and frequency measurements using an oscilloscope to prepare them for success in upper-level majors courses upon transfer and for Research and Development internships at local companies.

Request related to EMP goal or Assessment?

EMP Goal 5,EMP Goal 10

\$ Amount Requested

7,000

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation,Department Regular Funding

The evidence to support this request can be found in:

Program Review: Part 1

This request for my area is Priority #:

2

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

N/A

What resources do you need?

Attending the annual American Association of Physics Teachers (AAPT) Conference and PERC (Physics Education Research Conference), a paired set of conferences, is critical for our department to stay up to date on physics pedagogy, technology in the classroom, and DEI initiatives within both the physics and

Resource Requests

broader education community. This conference offers a variety of resources for faculty professional development, including the opportunity to interact with K-12 teachers, the Two Year College (2YC) Topical Group, the Early Career Topical Group, textbook and equipment vendors, company representatives (who advertise for summer internships) and faculty representing a large number of universities in California. Attending this conference also enables us to help promote Norco College and the RCCD district for future faculty, associate faculty, and administrative hires.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 3,EMP Goal 4,EMP Goal 6,EMP Goal 9

\$ Amount Requested

1,500

Resource Type

BUDGET: Request Ongoing Funding (Professional Development, Department or Program Support, Outreach, Marketing)

Potential Funding Source(s)

Other/None

The evidence to support this request can be found in:

Program Review: Part 1

This request for my area is Priority #:

3

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Pasco plastic cars (called Pascars*) that must be attached with thread to old rotary motor sensors with special digital interfaces. They currently utilize 3-ft plastic tracks. However, our current cars do not have friction, collision, or Eddy Current accessories.

What resources do you need?

We need 10 Vernier Go Direct Sensor Carts and Dynamics Track Systems to replace the outdated plastic cars and tracks that we currently have. The Sensor Carts have built-in motion, velocity, acceleration, and force sensors allowing them to be used for a variety of kinematics labs in Physics 11, 2A, and 4A. In addition, these sensors carts utilize Bluetooth connections enabling students to collect data on the tabletops, on the floor, in the hall, or even outside! Finally, using the free Vernier Graphical Analysis software, students can pair the sensor carts to their own devices, removing the boundary of being tied to a lab computer. For experiments where straight line motion is necessary, the 2.2 meter tracks will allow students to take better data than the 3-ft tracks we have now because the cars will be able to move more than 12 inches before colliding with one another or running into the end of the track. The friction, collision, and Eddy current attachments allow the systems to be used for multiple experiments (at least four different complete

Resource Requests

labs per class for 11, 2A, and 4A). These dynamics kits are open ended enough to allow students to design their own experiments without being tied to a step-by-step lab.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

8,400

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

4

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

We do not currently have anything comparable for this equipment request.

What resources do you need?

We need 10 Vernier Centripetal Force Apparati to use in combination with the Go Direct Sensors for a rotation motion lab in Physics 11, 2A, and 4A. The devices will allow students to do multiple rotational motion activates in exploring Newton's Laws, rotational motion, and rotational kinetic energy, and rotational inertia. In addition, these devices have an open ended nature which allow students to design their own experiments instead of being tied to a step-by-step style lab.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

7,200

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

5

Resource Requests

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Pasco Capstone

What resources do you need?

We need a site license for the Vernier Graphical Analysis Pro for use with the Vernier sensors. This software allows students to create graphs, charts, image analyses, video analyses, and graphical analyses without being tied to a pre-made template.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

375

Resource Type

ITEM: Technology

Potential Funding Source(s)

Lottery Instructional Supplies

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

7

Is this request:

New

For Administrative Use Only

Funding Status

Notes

Resource Requests

2022 - 2023 Update

Resource Request

What resources do we already have?

We currently do not have anything that is comparable to this request.

What resources do you need?

We need 10 Go Direct 3-Axis Magnetic Field Sensors for use in Magnetism experiments in Physics 11, 2B, and 4B. These probes are bluetooth enabled and allow students to record the strength of magnetic fields around bar magnets, inductors, and in inductive circuits.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

900

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

7

Is this request:

New

For Administrative Use Only

Funding Status**Notes**

2022 - 2023 Update

Resource Request

What resources do we already have?

We currently have 8 force sensors that require a proprietary connection to a Lab Quest interface box and must be used with the lab computers.

What resources do you need?

We need 10 Vernier Go Direct Force sensors that can be used in a variety of experiments in Physics 11, Physics 2A, and Physics 4A. These force sensors utilize Bluetooth connections enabling students to collect data on the tabletops, on the floor, in the hall, or even outside! Finally, using the free Vernier Graphical Analysis software, students can pair the force sensors to their own devices, removing the boundary of being tied to a lab computer.

Resource Requests

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

1,300

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

8

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

We have 8 Motion Detectors that use proprietary connections to a LabQuest interface and must be used with the lab computers. Their range is only about 4-feet.

What resources do you need?

We need 10 Vernier Go Direct Motion Detectors to use in our Physical Science, Physics 10, 11, 2A, and 4A classes. These sensors carts utilize Bluetooth connections enabling students to collect data on the tabletops, on the floor, in the hall, or even outside! Finally, using the free Vernier Graphical Analysis software, students can pair the motion detectors to their own devices, removing the boundary of being tied to a lab computer. Their range is as close as 15cm and can go as far away as 3.5m (10 feet!)

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

1,300

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

6

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

We currently have 10 Photogates that use a propriety connection to a Lab Quest interface

What resources do you need?

We need 18 Vernier Go Direct Photogates (2 per group) to use in our Physical Science, Physics 10, 11, 2A, and 4A classes. These photogates utilize Bluetooth connections enabling students to collect data on the tabletops, on the floor, in the hall, or even outside! Finally, using the free Vernier Graphical Analysis software, students can pair the gates to their own devices, removing the boundary of being tied to a lab computer.

Request related to EMP goal or Assessment?

EMP Goal 1,EMP Goal 7

\$ Amount Requested

1,300

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

9

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

5 PASCO smart carts, 10 regular carts.

Resource Requests

What resources do you need?

10 PASCO smart carts. PASCO smart carts allow for wireless integration resulting in less clutter and more accurate signal reception and recording. We currently have 5 PASCO smart carts. With eight lab stations, this is not enough. We also need additional smart carts in case the current one's break.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,850

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

10

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Vernier interfaces

What resources do you need?

10 PASCO 850 interfaces. PASCO 850 interfaces will allow for far less clutter and seamless integration with PASCO sensors and software while allowing a central HUB with multiple connections in the same unit. This will help streamline our labs while allowing for greater integration.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

19,999

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

11

Resource Requests

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Discover Free Fall System. These allow for very accurate time of flight measurements for different falling objects. Required for our new free-fall lab we designed.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

4,490

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

12

Is this request:

New

For Administrative Use Only

Funding Status

Notes

Resource Requests

2022 - 2023 Update

Resource Request

What resources do we already have?

8 PASCO mini launchers (old version).

What resources do you need?

10 PASCO New Mini Launchers with New Base. These new mini launchers allow for 370 deg firing angles so that the launcher can be along tabletops or aisleways. This is critical for the projectile motion experiment where we have limited room space to conduct the experiment.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,550

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

13

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

8 Wired rotary sensors and 8 wired force sensors

What resources do you need?

10 Atwood's machine kits. These kits include wireless rotary sensors and wireless force sensors for greater freedom in measuring the acceleration of the Atwood's machine and the tension in the cord for the experiment (very difficult to measure with wired force sensor). Atwood's machine is an important experiment involving Newton's second law.

Request related to EMP goal or Assessment?

EMP Goal 7

Resource Requests

\$ Amount Requested

2,950

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

14

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 sliding friction kits. These are required to perform our new sliding and static friction lab which has many applications in physics and engineering.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

3,950

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

14

Is this request:

New

For Administrative Use Only

Funding Status

Resource Requests

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

8 Vernier interfaces

What resources do you need?

10 PASCO 850 interfaces. These interfaces allow for multiple connections to PASCO sensors and software for a more seamless and less cluttered workstation.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

19,999

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

15

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Discover Free Fall System. This system allows for very accurate time of flight measurements for our new free fall experiment.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

4,490

Resource Requests

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

16

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

8 old PASCO mini launchers with old base.

What resources do you need?

10 PASCO New Mini Launchers with New Base. These new launcher kits are vital for our new projectile motion experiment procedure as they allow for a 360 degree firing angle for tabletop and aisle way projectile experiments. We need this due to room square footage limitations with 8 lab stations.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,550

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

15

Is this request:

New

For Administrative Use Only

Funding Status

Resource Requests

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Centripetal Force Kits. These kits are required to run our new centripetal force experiment.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

4,090

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

17

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Wired force sensors

What resources do you need?

10 PASCO Wireless Force Sensors. These will allow for a less cluttered lab station while giving the students more freedom for experiment setup as the Bluetooth force sensors can operate at a greater range from the interfaces. This is critical due to our lab space square footage limitations in HUM 201.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,090

Resource Requests

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

18

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

8 wired PASCO motion sensors.

What resources do you need?

10 PASCO Wireless Motion Sensors. These will allow for a less cluttered lab station while giving the students more freedom for experiment setup as the Bluetooth force sensors can operate at a greater range from the interfaces. This is critical due to our lab space square footage limitations in HUM 201.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,090

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

19

Is this request:

New

For Administrative Use Only

Funding Status

Resource Requests

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

8 ballistic pendulum setups.

What resources do you need?

10 PASCO Ballistic Pendulum Kits. The old ballistic pendulum setups use strings to allow the pendulum to swing. This is quite inaccurate since the tension in the string goes slack when the projectile strikes the housing. The results that the students get for the experiment suffer as a result.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

10,500

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

19

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

OpenStax Textbooks

What resources do you need?

A classroom set of books for our Physics 10 and Physical Science courses. The OER resources are too high level for these courses (and are not appropriate to use). By providing a classroom set, we would be able to list the course as a Zero-Cost Textbook course and would increase access to quality materials for students who otherwise would not be able to afford the book.

Resource Requests

Request related to EMP goal or Assessment?

EMP Goal 3,EMP Goal 1

\$ Amount Requested

12,000

Resource Type

ITEM: Instructional supplies

Potential Funding Source(s)

Lottery Instructional Supplies

The evidence to support this request can be found in:

Program Review: Part 1

This request for my area is Priority #:

20

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Angular Momentum Kits. These kits are needed to perform our new angular momentum and conservation of angular momentum labs.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

4,890

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

21

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Gravitation Torsion Balance Kits. These kits are needed to perform our new gravitational force lab to verify the universal gravitational constant.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

26,600

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

22

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

Resource Requests

What resources do you need?

10 PASCO Statics System Kits. These kits are needed to perform our new static equilibrium experiment. This equipment will simulate load bearing on a boom with a pulley system, which conveys important concepts used in mechanical and civil engineering.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

5,990

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

23

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Old pendulum clamps.

What resources do you need?

10 PASCO Pendulum Clamps. These new clamps are much easier to attach fixed strings for our new angular oscillation's lab. The new clamps are also easier to position.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

230

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

24

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Driven Oscillations Kits. These kits are needed to perform our new driven oscillations lab. This lab is meant to simulate oscillations similar to an earthquake, which is an important consideration in structural and civil engineering.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

12,400

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

24

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

Resource Requests

What resources do you need?

10 PASCO Overflow Cans for Buoyancy. We need these cans to measure the buoyant force on a submerged body for our new Archimede's principle lab.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

80

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

25

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Electroscopes.

What resources do you need?

10 PASCO Electric Charge Kits. Electroscopes are not very sensitive to electric charge, especially if the air is not dry. These new electric charge kits are quite sensitive the electric charge (they are large conductors), and therefore are far superior for our new Coulomb's law experiment.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

10,990

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

26

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Electric Field Mapping cork sheets.

What resources do you need?

10 PASCO Electric Field Mapper Kits. These PASCO kits are easier to use for the students than the current kits we have. These new kits use a conductive paste instead of conductive sheets, which are cumbersome to use.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

2,050

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

27

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Basic circuit elements (resistor, capacitors etc.)

Resource Requests

What resources do you need?

10 PASCO Basic Modular Circuits Kits. These modular kits are much more user friendly than wired resistors, capacitors etc. The modular nature of the circuits allows for the students to better visualize the electric circuits they are building. This will benefit our students in computer science and electrical engineering pathways.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,990

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

28

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Resistivity Kits. We need these kits for our new resistivity lab.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

3,200

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

29

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

RC Circuit elements (resistors, capacitors) with wired connections.

What resources do you need?

10 PASCO RC Circuit Kits. These kits are much more compact and significantly cut down on clutter in the lab station when constructing electric circuits. The circuit board also makes it more intuitive for the students to build circuits (helps them to better visualize).

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

1,950

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

30

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Solenoid slinky.

Resource Requests

What resources do you need?

10 PASCO Magnetic Fields of Coils Kits. These coil sets come with built in solenoids and wire coils (Helmholtz coils). These will allow us to investigate the magnetic field lines produced by these coils. Currently, we only have solenoids made from slinkies.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

12,290

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

31

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Basic Current Balances. These balances are needed for our new magnetic force lab.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

2,990

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

32

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Ampere's Law Kits. These kits are needed for our new Ampere's law lab.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

9,150

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

33

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

Resource Requests

What resources do you need?

10 PASCO Hall Effect Kits. The Hall effect is a very important example induction. This effect plays a role in electric currents in inductors and has consequences for electric circuits in computer science, electrical engineering etc.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

24,200

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

34

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Faraday's Law of Induction Kits. These kits are needed for our new Faraday's experiment. The experiment illustrates Lenz's law, which is a crucial concept for electric generators etc.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

8,850

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

35

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

Separate resistors, inductors, and capacitors.

What resources do you need?

10 PASCO RLC Circuit Kits. These kits have resistors, inductors, and capacitors integrated in the electric board. This makes it more convenient to construct RLC circuits with far less lab station clutter.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

2,980

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

36

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Polarization Kits. These kits are needed for our new linear polarizer's lab.

Resource Requests

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

8,250

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

37

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Laser Speed of Light Kits. These kits are needed for our new speed of light experiment. This experiment measures one of the most fundamental constants of the universe. We need a precise measurement using sensitive equipment from these kits.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

15,850

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

38

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Atomic Spectra Kits. We need these kits for our new spectroscopy lab. Spectroscopy has applications in astronomy and chemistry. This equipment will allow us to engage our students in other fields of study through the lab procedures we are developing for this experiment.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

16,990

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

39

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

Resource Requests

What resources do you need?

10 PASCO Blackbody Radiation Kits. These kits are needed for our new blackbody radiation experiment. This experiment is widely considered the birthplace of quantum mechanics. This experiment will allow our students to investigate emission as a function of temperature and investigate Plank's quantum model of the results.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

19,950

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

40

Is this request:

New

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Frank-Hertz Kits. These kits are needed for our new Frank-Hertz lab.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

39,000

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

41

Is this request:

New

Resource Requests

For Administrative Use Only

Funding Status

Notes

2022 - 2023 Update

Resource Request

What resources do we already have?

None

What resources do you need?

10 PASCO Photoelectric Effect Kits. These kits are needed for our new photoelectric effect lab. This lab activity illustrates the quantum nature of light, where in this experiment, light behaves as a particle instead of a wave. This is a great experiment to illustrate the particle-wave duality of light.

Request related to EMP goal or Assessment?

EMP Goal 7

\$ Amount Requested

41,000

Resource Type

ITEM: Equipment, Services, Software, Furniture

Potential Funding Source(s)

Instructional Equipment Allocation

The evidence to support this request can be found in:

Program Review: Part 2

This request for my area is Priority #:

42

Is this request:

New

For Administrative Use Only

Funding Status

Notes

Submission

2021 - 2024

All parts of my Program Review have been completed and it is ready for review

Yes

2022 - 2023 Update

I would like to submit this update

Yes

The additions or updates to my Program Review can be found in:

Program Review: Part 1,Resource Requests,Assessment Review,Data Review,Program Review: Part 2