YEARLY PLANNING DISCUSSION TEMPLATE
General Questions

Program Name ____Physics_____**Academic Year** __**2022-23**____

1. Has your program mission or primary function changed in the last year?

   No, the primary function has not changed.

2. Were there any noteworthy changes to the program over the past year? (eg, new courses, degrees, certificates, articulation agreements)

   Not this year. A significant change was approved and will be implemented next year.

3. Is your two-year program map in place and were there any challenges maintaining the planned schedule?

   Yes. There were no challenges involved in maintaining the planned schedule for the Physics degrees, however there were course time conflicts between courses required for Chemistry and Chemical Engineering majors. This will be part of the Area of Focus/Core Topic for a future year's review..

4. Were there any staffing changes?

   No, there were no staffing changes.

5. What were your program successes in your area of focus last year?

   As part of an external grant (California Learning Lab), embedded tutors were available for PHYS 110, 161, 162, and 163.

Learning Outcomes Assessment

a. Please summarize key results from this year's assessment.

For those courses that were assessed on this year's program learning outcome of

"Analyze complex problems to identify single principle components, and synthesize solutions from multiple concepts."

it was found that 65% met the standard.

b. Please summarize your reflections, analysis, and interpretation of the learning outcome assessment and data.

This is slightly below the target of 70% but is typical or somewhat better than the average for physics programs and courses. The rate of attainment decreased slightly as the course level increased which is to be expected since the standard is easier for students to meet at an introductory level and there are fewer external downsides to dropping the introductory course.

c. Please summarize recommendations and/or accolades that were made within the program/department.

In the spirit of continual improvement, we will continue various initiatives to improve student attainment of learning outcomes. We will monitor improvements in student attainment associated with increased availability of near-peer tutoring and innovations such as that detailed under this year's area of focus/core topic.

d. Please review and attach any ***changes*** to planning documentation, including PLO rubrics, associations, and cycles planning.

There were no changes, although the cycle will require additional planning.

Distance Education (DE) Modality Course Design Peer Review Update (Please attach documentation extracted from the *Rubric for Assessing Regular and Substantive Interaction in Distance Education Course*s)

a. Which courses were reviewed for regular and substantive interactions (RSI)?

N/A this will begin next year after staff are trained.

b. What were some key findings regarding RSI?

- Some strengths:

  N/A

- Some areas of possible improvement:

  N/A

c. What is the plan for improvement?

   N/A

CTE two-year review of labor market data and pre-requisite review

a. Does the program meet documented labor market demand?

   N/A *not CTE*

b. How does the program address needs that are not met by similar programs?

   N/A

c. Does the employment, completion, and success data of students indicate program effectiveness and vitality? Please, explain.

   N/A

d. Has the program met the Title 5 requirements to review course prerequisites, and advisories within the prescribed cycle of every 2 year for CTE programs and every 5 years for all others?

   N/A

e. Have recommendations from the previous report been addressed?

   N/A

Use the tables below to fill in **NEW** resources and planning initiatives that **do not apply directly to core topics.** ***This section is only used if there are new planning initiatives and resources requested.***

Sample:

New Program Planning Initiative – Yearly Planning Only	
Title:	*(Short description of the planning initiative)* Telescope night
Planning years:	*(The academic years this will take to complete)* 2021-22 to 2024-25
Description: *(A more detailed version of initiative. Please include a description of the initiative, why it is needed, who will be responsible, and actions that need to happen, so it is completed.)* The success levels of our courses have indicated that students need to have a hands-on experience with finding and pinpointing important celestial objects. Having a telescope night would allow students to learn how to align and find objects.	
Resources: **Priority Level:** Low Medium **High** **Resource Type:** **Equipment** Staff Faculty Supplies and Materials **Quantity:** 1 **Per Item Price:** $69.99 **Price with taxes/shipping, etc.:** $76.00 **Description:** Telescopes for students to use during the telescope nights. It is a 70mm telescopes for Adults Astronomy & Kids & Beginners, 300mm Portable Refractor Travel Telescope (15X-150X) with A Smartphone Adapter& A Wireless Remote https://www.amazon.com/ToyerBee-Telescope-Telescopes-Professional-Smartphone/dp/B095XQVTNM/ref=sr_1_4?crid=256FVSAQ5EU0P&keywords=telescope&qid=1667944660&sprefix=telescop%2Caps%2C160&sr=8-4&ufe=app_do%3Aamzn1.fos.18ed3cb5-28d5-4975-8bc7-93deae8f9840	

New Program Planning Initiative – Yearly Planning Only	
Title:	**Optical/Quantum Demonstration/Lab**
Planning years:	**2023 - 24 to 2024 - 25**

Description:

Students in our modern physics course need additional opportunities to work with hands-on labs and observe at least analogs of quantum phenomena. Besides providing clear demonstrations of interferometry and polarization, the quantum eraser analog experiment develops optics skills, can be used as a demonstration or lab, and can be enhanced to demonstrate actual quantum phenomena via relatively simple modifications. The purchase of this equipment would help address a relative lack of resources available for our modern physics labs relative to mechanics and electricity/magnetism.

Resources:

Priority Level: Low Medium **High**
Resource Type: **Equipment** Staff Faculty Supplies and Materials
Quantity: 1
Per Item Price: $2,094.63 **Price with taxes/shipping, etc: $2,344.63**
Description: Thorlabs' Quantum Eraser educational lab kit shows through analogy the quantum-mechanical principle of complementarity and the erasure of path information. Designed to show the fundamental principles of quantum physics, this experiment clearly displays how nature is often counterintuitive on the quantum scale. Includes a full Mach-Zehnder interferometer setup (diode laser, mirrors, polarizers, optics breadboard, etc.) and manual.
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=6957

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

New Program Planning Initiative – Yearly Planning Only	
Title:	Summer Middle-School Outreach
Planning years:	2024 - 25

Description:

In collaboration with MESA, a summer outreach for middle school students as part of a larger effort to increase representation of female students in STEM.

Resources:

Priority Level: Low Medium **High**
Resource Type: Equipment **Staff** Faculty Supplies and Materials
Quantity: 4
Per Item Price: $35 **Price with taxes/shipping, etc: $140**
Description: Staff to setup and support summer middle school student outreach (3 hr lab experiment making electrical motors).

Resources:

Priority Level: Low Medium **High**
Resource Type: Equipment Staff Faculty **Supplies and Materials**
Quantity: 10
Per Item Price: ~$10 **Price with taxes/shipping, etc: $100**
Description: Sets of components for constructing electrical motors. The completed motors are taken home by students.

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Area of Focus Discussion Template
ACADEMIC SERVICES AND SUPPORT

Academic Services and Support – assess and improve relationship with tutorial services, library, counseling, learning assistance program (LAP), etc. and evaluate co-curricular support courses.

Possible topics:

- Collaborate with student success team members to ensure institutional barriers are mitigated.
- Review and summarize student support options.
- Implement student surveys and evaluate results.
- Assess co-curricular support programs and services.

1. What data were analyzed and what were the main conclusions?

Review and summary of student support options. Students have access to a new shared working space (MESA center), drop-in course specific tutoring, embedded tutors for most physics courses, dedicated STEM counselors, and student-led study groups. However, almost all of these supports are tied to particular courses or are only available during certain times of day or year

2. Based on the data analysis and looking through a lens of equity, what do you perceive as *challenges* with student success or access in your area of focus?

Students sometimes do not take advantage of the offered support services because they are not able due to other commitments, are not aware of the offerings, or choose not to participate.

3. What are your plans for change or *innovation*?

As part of a larger initiative within STEM/MESA , the Physics program is planning to offer "bootcamp"-style short-duration preparatory courses for PHYS 161 and PHYS 110. It is hoped that this may partly address the challenge of too many commitments because the bootcamps would be offered prior to the beginning of the semester in which the students will take the associated courses, thereby making the load of other courses irrelevant. In addition, based on similar programs at other schools, the bootcamps are expected to foster student communities and increase the likelihood that the students will choose to avail themselves of other support opportunities.

4. How will you *measure* the results of your plans to determine if they are successful?

The subsequent participation of students who join the bootcamps in other supports such as MESA center tutoring will be recorded.

Validation for Program Planning Process: If you have chosen to do the Validation this year, please explain your process and the findings.

1. Who have you identified to validate your findings? (Could include Guided Pathway Success Teams, Advisory Committee Members, related faculty, industry partners or higher education partners)

   N/A

2. Are there specific recommendations regarding the core topic responses from the validation team?

   N/A

Based on the narratives for the prompts above, what are some program planning initiatives and resources needed for the upcoming years? Use the tables below to fill in **NEW** resources and planning initiatives. ***This section is only used if there are new planning initiatives and resources requested that pertain to the Core Topic only.***

New Program Planning Initiative– Core Topic Only	
Title:	Physics Bootcamps
Planning years:	2023-24 to 2026-27
Description: Three-day/10 hour bootcamps consisting of a different group experiment meant to help students develop physical intuition and teambuild. May one bootcamp for PHYS 110 or one for PHYS 161 or one for each (they would not be mixed). Expected to be run two different semesters, most likely in different years as a pilot.	

Resources:

Priority Level: Low Medium High
Resource Type: Equipment **Staff** Faculty Supplies and Materials
Quantity: 20 -40
Per Item Price: $17 **Price with taxes/shipping, etc: $340 - $680**
Description: Student Worker as assistant for bootcamps 10 hours per camp. Meant to promote interaction between new students and advanced students who will potentially be tutors during the academic year.

Resources:

Priority Level: Low Medium High
Resource Type: Equipment **Staff** Faculty Supplies and Materials
Quantity: 10 - 20
Per Item Price: $35 **Price with taxes/shipping, etc: $350 - $700**
Description: Lab staff to set up and support bootcamps which are expected to be held in summer or winter sessions.

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

New Program Planning Initiative– Core Topic Only	
Title:	
Planning years:	
Description:	

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

New Program Planning Initiative– Core Topic Only	
Title:	
Planning years:	
Description:	

Resources:
Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Resources:
Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Resources:
Resources:

Priority Level: Low Medium High
Resource Type: Equipment Staff Faculty Supplies and Materials
Quantity:
Per Item Price: **Price with taxes/shipping, etc:**
Description:

Program Review Signature Page:

Brian Youngblood (Jun 20, 2023 20:14 PDT)	Jun 20, 2023
Program Review Lead	Date
	Jun 20, 2023
Program Dean	Date
	Jul 20, 2023
Vice President, Academic Affairs	Date

Physics 22-23 Yearly Planning Update and Academic Services and Support Focus

Final Audit Report 2023-07-20

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