Department of Physics-Astronomy

Cañada College

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Mission

- The Physics & Astronomy Department endeavors to prepare students for successful transfer to four-year institutions, to provide the prerequisite foundation in physical sciences for further work in engineering and the sciences, as well as radiologist technologists, to foster critical thinking and active learning, and to fulfill the needs and interests of students by having a well-rounded curriculum of lecture and laboratories.

Offerings

Majors:

- PHYS 210/220: General Physics
- PHYS 250/260/270: Physics with Calculus
- PHYS 405: Applied Radiographic Physics

GE:

- ASTR 100: Introduction to Astronomy
- ASTR 101: Astronomy Laboratory

Enrollment Trends

- Female-to-total class declined (from 45% to 42%). This was due to a slight decline in female student enrollment versus a considerable increase in male students.
- In the same time period course retention increased for females from 80 to 82% and for males from 82 to 87%.
- Course success rate increased for females from 71 to 74% and for males 70 to 75%.

Changes in Course Enrollments

averaged over the last six years

All:	**-3.95%**	**(All College -4.33%)**
Female:	-7.42%	(All College -4.66%)
Male:	-1.20%	(All College -3.86%)
Latinx:	-1.17%	(All College -6.33%)
All except White and Asian:	-0.57%	(All College -4.52%)
White:	-10.18%	(All College -5.92%)
Asian:	+1.58%	(All College +0.63%)

Enrollment Trends

- The significant drops in White and Female groups occurred mainly in the time frame 15-16 to 18-19 and have been relatively stable the last few years.
- White Female: -10.45% per year (All College -5.94%)
- The above data suggest that program enrollments are similar to that college as a whole and for the male population.
- The program has had a significant decrease in the female student population relative to the college.
- The program has also had significantly less of decrease in the Latinx population relative to the college as a whole.

In-person and online delivery

Purpose:

-Increase delivery offerings for enrollment.

-Increase flexibility for attendance.

Adaptive tools:

-Both streaming and recorded videos.

-Screen share group work/lab data.

In-person and online delivery

Difficulties:

-Limitations on what is seen.

-Differences in level and nature of engagement.

-Disruption of group work based on attendance.

New facilities for equity

- Physics moved out of the engineering classrooms. Reduces conflict with lab scheduling and setups.
- Astronomy's new Observatory now available for ASTR 101, Astronomy Club, or general public use on a weekly basis (weather permitting)

New equipment for equity

- Request to upgrade lab measurement and processing tools to 2022 technology level (PASCO Datalogger+wireless sensors).

Success rates (online considerations)

- Comparisons of success and retention rates for on-line vs in-person is difficult because of:
  - Low statistics
  - Different students populations: the on-line format appeals to a different group of students than the in-person format.
  - The hybrid format further complicates comparisions

Student Modality Preferences

- Students “like” the flexibility of on-line courses
- Some students “like” the in-person experience
- On-line access to course content, notes, lectures, lab demos and apps is popular and addresses many of the student access needs.
- No one “loves” zoom

Our "5-year plan"

- Predicted demographic decline in student population (statewide)
- SMC 13% overall population growth by 2040 (ABAG)
- Plan for increasing underrepresented students in STEM
  - Maintain and increase support and accessibility for courses
  - e.g. Women in STEM
  - Tutors – encouraging women to become peer mentors and tutors.
  - Physics Jam (focus on women)