

California State Polytechnic University, Pomona



**Academic Program Review - Self-Study
College of Letters, Arts, & Social Sciences
Department of Economics
B.S. & M.S. Economics**

AY 2023-2024

August 16, 2024

TABLE OF CONTENTS

1	INTRODUCTION	3
1.1	Program Overview	3
1.2	Mission, Vision & Values.....	4
1.3	History	5
1.4	Credit Hour	6
2	PROGRAM EVALUATION – UNDERGRADUATE.....	8
2.1	Curriculum and Pedagogy – Undergraduate	8
2.2	Assessment of Student Learning – Undergraduate	13
3	STUDENTS - Undergraduate	18
3.1	Student Profile at Admission and Enrollment Undergraduate	18
3.2	Student Retention and Graduation Rates – Graduation Initiative 2025.....	22
3.3	Student Support, Satisfaction and Services Undergraduate	31
3.3.1	Co-Curricular	31
3.3.2	Academic Advising	32
3.3.3	Student Satisfaction	32
3.4	Stakeholders	34
4	PROGRAM EVALUATION –GRADUATE	35
4.1	Curriculum and Pedagogy –Graduate	35
4.2	Assessment of Student Learning – Graduate	36
5	STUDENTS - GRADUATE	41
5.1	Student Profile at Admission and Enrollment Graduate	41
5.2	Student Retention and Graduation Rates	43
5.3	Student Support, Satisfaction and Services Graduate	44
5.3.1	Co-Curricular	44
5.3.2	Academic Advising	45
5.3.3	Student Satisfaction	45
5.4	Stakeholders	45
6	INCLUSIVE POLYTECHNIC EDUCATION	46
7	FACULTY	49
7.1	Overview of Faculty.....	49
7.2	Faculty Support	52
8	UNIVERSITY SUPPORT AND RESOURCES	55
8.1	Personnel	55
8.2	Facilities and Space	55
8.3	Library	55
8.4	Other Campus Resources.....	60
8.5	Budget	61
9	CONCLUSION	62
10	APPENDICES: Curriculum Sheets and Faculty CVs	67

1 INTRODUCTION

Cal Poly Pomona ([CPP](#)) is one of 23 campuses of the California State University (CSU) system. It is the largest university system in the US, and was created in 1960 under the California Master Plan for Higher Education to focus on instruction and granting of baccalaureate and master's degrees. The CSU system now serves approximately 450,000 students annually, providing more than half of all undergraduate degrees conferred to the state's Hispanic/Latinx, African American, and Native American students combined.

CPP opened in 1938 as an all-male branch campus of Cal Poly San Luis Obispo. It enrolled its first female cohort of 329 students in 1961, formally separated from San Luis Obispo in 1966, gained WSCUC accreditation in 1970, was granted university-status in 1972, and converted from quarters to semesters in 2018. CPP is a regional comprehensive state university with over 2,600 faculty and staff serving approximately 26,000 students (Fall 2023). CPP's student population is diverse with 53% self-identifying as Hispanic/Latino, and only 13% identifying as White. Fifty-five percent of our students are first generation, and 42% are Pell-recipients,

CPP's graduate student population is small enrolling approximately 2,000 students, of which 50% are ethnic minorities (46% Hispanic/Latino), 7% are Pell recipients, and 82% are enrolled full-time. The average age of CPP's graduate population is 30 years.

1.1 Program Overview

This is a program review of the Bachelor of Science Degree in Economics and the Master of Science Degree in Economics. Both academic programs are housed within the [Department of Economics](#), which is in the College of Letters Arts and Social Science ([CLASS](#)) at CPP.

The Bachelor of Science Degree in Economics (120 units) has three Options:

- General
- Applied Economics
- Quantitative Economics

The department also offers a Minor in Economics (19 units). This minor is particularly relevant for the History B.A. - Pre-Credential Subplan/Option. This requires both economic principles classes and has upper-division requirements which can be satisfied two more economics courses. For such students, the minor requirements may be satisfied by 7 additional upper division units. Similarly, as business requires both economic principles courses only 13 additional upper-division units are required.

The Master of Science Degree in Economics currently requires 36 semester-units to complete the degree (although the department is considering reducing this). It trains students in core courses and fields that make them job-ready or prepare them for a Ph.D. program. Those completing the MS graduate with state-of-the-art skills and knowledge.

Preparation classes in Microeconomics, Macroeconomics, and Quantitative Analysis are offered in order to smooth the transition to graduate-level economics. This particularly benefits students with degrees outside of economics or those who graduated many years ago. Preparation courses can be counted towards the required 36 semester-units. Core courses required of all students are:

- EC 5550 (Graduate Microeconomics)
- EC 5551 (Graduate Macroeconomics)
- EC 5552 (Graduate Econometrics I)
- EC 5553 (Graduate Econometrics II)

The program offers graduate classes in specialized subjects including Money and Capital Markets, International Trade and Finance, Environmental and Natural Resource Economics, and Economic Planning. As a cumulative experience, students complete a research project that demonstrates their abilities to future employers or Ph.D. programs. Graduate courses are offered in the evening to accommodate working professionals. The program is designed to allow most students to earn their degree in 4 semesters.

1.2 Mission, Vision & Values

UNIVERSITY¹	Mission - We cultivate success through a diverse culture of experiential learning, discovery, and innovation.
	Vision - Cal Poly Pomona will be the model for an inclusive polytechnic university that inspires creativity and innovation, embraces local and global challenges, and transforms lives.
	Values <ul style="list-style-type: none"> • <u>Academic Excellence</u> – We demonstrate academic quality, relevance, and excellence through our teaching, learning, scholarship, and creative activities with student centered faculty in an evidence-based culture. • <u>Experiential Learning</u> – Our polytechnic identity fosters an integrative approach to education through collaboration, discovery, learn-by-doing, and innovation. Our approach encourages reflection, informed risk-taking, and continuous learning. • <u>Student Learning and Success</u> – We are deeply committed to educational experiences and supportive services that engage our students, enhance personal well-being and growth, provide career opportunities, and foster ethical citizenship. • <u>Inclusive</u> – Our diversity across multiple dimensions reflects and enhances our community. We are welcoming and respectful, and we value diversity. • <u>Community Engagement</u> – We nurture mutually beneficial and meaningful relationships with community partners and stakeholders. • <u>Social and Environmental Responsibility</u> – As global citizens, our individual and collective actions reflect our commitment to one another, society, and the environment.

¹ Source: <https://www.cpp.edu/~aboutcpp/calpolypomona-overview/mission-and-values.shtml>

COLLEGE OF LETTERS, ARTS, & SOCIAL SCIENCES²	Mission - We cultivate one's intellectual development, ethical reasoning, and aesthetic sensibility to support creative and critical thinking in a diverse world of competing challenges.
	Vision - We will be a supportive, engaged, and diverse community of teachers, learners, and scholars committed to improving the human condition and to bettering the world.
	Values – We the faculty, staff, and students of CLASS value: <ul style="list-style-type: none"> • Theoretical and experimental approaches in developing critical thinkers and creative problem solvers, • Discovery through research, scholarly, and creative activities • Transparency, equity, empathy, integrity, diversity, and • Working towards a just, humane, and inclusive world
Department of Economics	<p>Mission statement: The Department of Economics provides a broad framework of economic and policy analysis; presents concepts as they apply to interaction in the local, regional, national, and global economies; and is committed to the advancement of knowledge and learning in the field of economics as a social science.</p> <p>It supports the intellectual, personal, and professional development of its Majors, Minors, and Graduate students by preparing students for life, leadership, and careers in a changing, multicultural world through the process of learning and application in a polytechnic university setting.</p> <p>Critical thinking and analytical reasoning are encouraged at all levels and quantitative analysis using current tools and methods emphasized. The Department provides a learning opportunity for students in an environment of collegiality, collaboration, and enthusiasm for learning within the local as well as the global community.</p>

This Mission Statement resulted from a recent college-level identity exercise. The department currently has no separate vision and value statements. Note how the statements are interconnected and mutually supporting, more general at the higher university and college levels, and more specific at the department.

1.3 History

The Department of Economics has been an important part of Cal Poly Pomona since its founding as an institution separate from Cal Poly San Luis Obispo in 1966. The department's Master of Science (MS) degree was one of the first in the California State University (CSU) system, created in 1967 in order to offer intensive education in economic theory and analysis.

The economics department has experienced a significant decline in size since 2000 when it had 13 tenure line faculty and six adjuncts. Currently the Department has 5 tenure-line faculty (two at retirement age), and six adjunct faculty.

This shrinkage is largely the result of external factors including a CSU-wide initiative to reduce units required for graduation in 2008 which led programs in business and engineering to eliminate required economics courses; and more recently, a change in Cal Poly Pomona's graduation requirements, specifically the phasing out of a social science general education (GE) category "D3" starting in Fall 2021. This resulted in removal of economic principles as a GE course, significantly reduced the number of students enrolling in introductory economics courses, and so the department's size. However, harmonization of general education between

² Source: <https://www.cpp.edu/class/discover-class/index.shtml>

the three California educational systems: the University of California, California State University, and Community College Systems ([AB928](#)) which will begin implementation in Fall 2025, may return economics to GE at Cal Poly Pomona, as it is at other institutions throughout the State. This return will directly increase the number of students enrolling in economic principles classes to fulfill university requirements. In addition, the number of majors and minors will undoubtedly increase as well as more students are exposed to the discipline at the college level. This will not only benefit the department and the College of Letters Arts and Social Science (CLASS), but more significantly the Cal Poly student body overall. In the past, many of our majors have come from areas such as engineering and business, as they learned that their interests and skills are better suited to studying economics. This exposure of economics is particularly impactful for the first generation students who are less likely to know about economics and the career opportunities it provides.

The most recent full program reviews took place in 2004 and 2008 for the BS and MS programs, respectively. Suggestions of the external review were addressed to the extent possible, given limited resources and changes external to the department. Other suggestions were either addressed by, or rendered irrelevant by the extensive changes undertaken by the department as part of the university's change to a semester system starting in Fall 2018.

1.4 Credit Hour

As of July 1, 2011 federal law (Title 34, Code of Federal Regulations, sections 600.2 and 600.4) requires all accredited institutions to comply with the federal definition of the credit hour. For all CSU degree programs and courses bearing academic credit, the "credit hour" is defined as "the amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

- *One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or*
- *At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours."*

A credit hour is assumed to be a 50-minute period. In courses in which "seat time" does not apply, a credit hour may be measured by an equivalent amount of work, as demonstrated by student achievement.

Currently, Cal Poly Pomona offers the following instructional modes:

- i. *Face-to-Face:* Instructed fully in-person at specified days and times.
- ii. *Hybrid Synchronous:* Instructed fully online at specified days and times; some meetings on-campus and some meetings online.
- iii. *Hybrid Asynchronous:* Instructed partially on-campus at specified days and times, with the rest of the instruction delivered asynchronously.
- iv. *Fully Synchronous:* Instructed fully online at specified days and times.
- v. *Fully Asynchronous:* Instructed fully online; no specific required days and times.
- vi. *Hyflex:* Students choose to attend class meetings in-person with the instructor, synchronously online, or asynchronously online, with all options available throughout the semester.

The economics department currently offers nearly all undergraduate and all graduate courses in the first mode, traditional Face-to-Face. We also offer a limited number of Microeconomic Principles (EC 2201) and Macroeconomic Principles (EC 2202) sections in the third and fifth modes. Hybrid Asynchronous sections either meet once (Tuesday or Thursday); or twice (Monday and Wednesday) a week in-person, with an additional online required component. In addition two microeconomic principles sections are offered in a Fully Asynchronous mode. These Fully Asynchronous online sections are taught by tenured faculty and their design was the result of a pre-COVID course design program in which three current tenured professors participated together, one (Carsten Lange) a recognized expert in the area of online instruction. Prior to Spring 2020, the economics department offered a limited number of hybrid sections of Micro- and Macroeconomic Principles which had grown out of this effort, and these formerly hybrid sections became Fully Asynchronous during the pandemic.

During the pandemic all classes were taught remotely; generally in a Fully Synchronous manner with classes meeting via Zoom during the assigned times. By Fall 2022 nearly all class meetings had returned to on-campus instruction, but some changes in course modality remained after the pandemic. Faculty had constructed online assignments and created remote teaching tools and assessments. This allowed a change in modality to hybrid for some course sections. The increased use of hybrid and online formats take advantage of the remote skills developed by both faculty and students during the pandemic. The current limited number of sections offered in non-traditional formats serve those students with a preference and/or need for alternate modes of instruction.

One upper division course, Economic Statistics, EC 3322, is offered in the Hybrid Asynchronous mode, by a tenured colleague, an expert in online-education and an advocate for it. All other upper-division and graduate courses are currently offered only in the traditional face-to-face format.

The department schedules nearly all courses in the university-approved time modules. The only exceptions in Fall 2024 are associated with one-unit activity sections, required corequisites with economic statistics (EC 3322) and intermediate microeconomics (EC4401). Review of data provided periodically by the CLASS Dean's Office insure faculty teach the required number of WTU's, and that the administration was aware of this. These data also ensure WTUs taught by lecturers aligned with the contracts submitted to the Dean's Office

2 PROGRAM EVALUATION – UNDERGRADUATE

2.1 Curriculum and Pedagogy – Undergraduate

Curricula for each option of the BS Economics program may be found here:

- 1) Applied Economics ([link](#)); 2) General Economics ([link](#)); 3) Quantitative Economics ([link](#))

Table 1 is a list of GE courses and Table 2 is a list of honors courses taught.

Table 1 – General Education Courses³

Course	Course Title
EC 1100	Contemporary Economics Issues
EC 2201	Principles of Microeconomics
EC 2202	Principles of Macroeconomics
EC 4441	Industry Studies
EC 4442	Countrywide Economic Studies

Table 2 – List of Honors Courses⁴

Course	Course Title
EC 2201H	Principles of Microeconomics Honors

Table 3 provides data associated with high non-passing rates. It is important to note that the numbers reported below are based on filtering the data by major, so only students enrolled as an Economics major are included in the counts.

Table 3 – High – DFW's by Non-Pass Rate⁵

Non-Passing					
Year Term	Course Code	Course Title	Enrollment	Non-passing Rate	Impact
All Academic Years - Semester	EC4401	Intermediate Microeconomics	249	27%	67
All Academic Years - Semester	EC3322	Economic Statistics	214	21%	44
All Academic Years - Semester	EC4430	Economic Development	19	21%	4
All Academic Years - Semester	EC4433	Labor Economics	81	20%	16
All Academic Years - Semester	EC4444	Econometrics	154	16%	24
All Academic Years - Semester	EC4437	Natural Resource Economics	19	16%	3
All Academic Years - Semester	EC4431	Public Finance	132	14%	19
All Academic Years - Semester	EC2201*	Principles of Microeconomics*	131	13%	17
All Academic Years - Semester	EC1100*	Contemporary Economic Issues*	16	13%	2
All Academic Years - Semester	EC4990	Spec Topic For Ud Students	59	12%	7
All Academic Years - Semester	EC4620	Senior Seminar	192	10%	19
All Academic Years - Semester	EC2202*	Principles of Macroeconomics*	108	10%	11

*GE Courses

³ Source: Catalog https://catalog.cpp.edu/preview_program.php?catoid=36&poid=9591

⁴ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/ClassSchedule/CourseAttribute?iid=1>

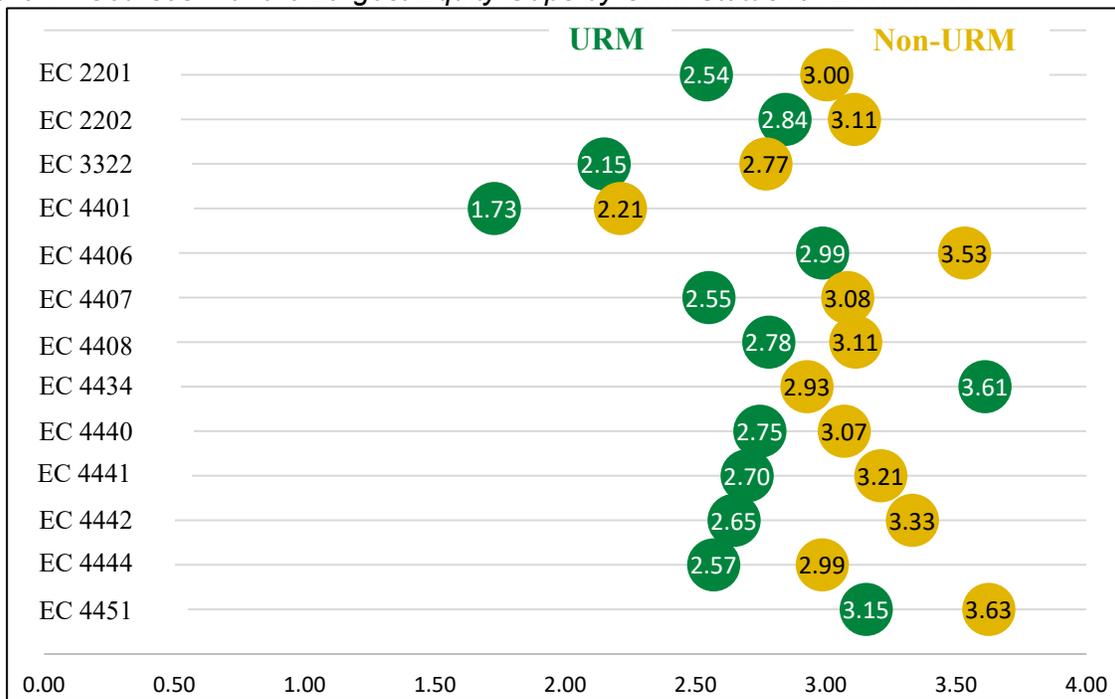
⁵ CSU Dashboard "In Which Courses Do They Struggle" Report <https://csusuccess.dashboards.calstate.edu/public/faculty-dashboard/where-do-they-struggle>

Practices adopted to reduce DFW rates include:

- i. early quizzes and other graded assignments so students can realistically estimate their chance for success before the drop deadline;
- ii. Support from graders in large EC 2201 principles classes (funds to hire graders provided by Academic Affairs, the department has no teaching associates or assistants);
- iii. encouraging of all students to participate in extra-curricular activities (e.g., Econ Club activities and events);
- iv. encouraging students who have valid reasons for dropping to drop classes rather than receiving an F or other non-passing grade).

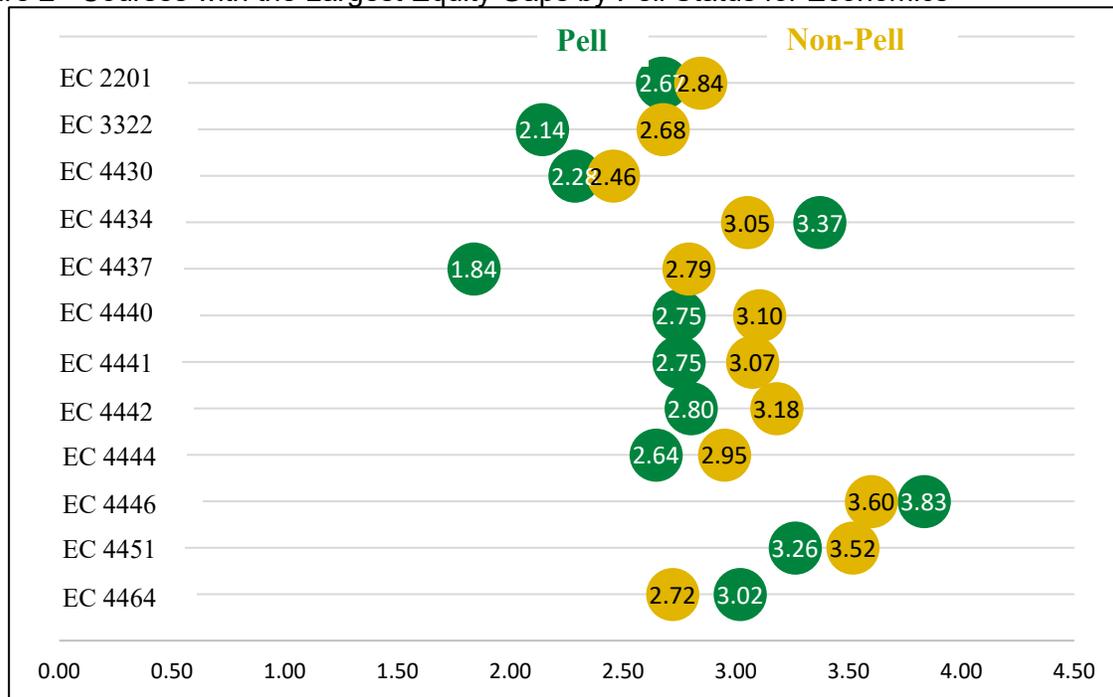
Figure 1 depicts the Economics courses with the largest equity gaps for URM and non-URM students. Figure 2 depicts the Economics courses with the largest equity gaps for Pell recipients and non-Pell recipients. The scale uses grades (1 = D; 2 = C; 3 = B; 4 = A).

Figure 1– Courses with the Largest Equity Gaps by URM Status for Economics⁶



⁶ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/CourseEquityGaps/EquityGaps?iid=1>

Figure 2– Courses with the Largest Equity Gaps by Pell Status for Economics⁷



The economics department totally revised its curriculum when the university changed from the quarter calendar to semesters in Fall 2018. This included elimination of a two “track” system, with only one required calculus course. The department now offers three options, all of which require calculus. And since Fall 2022 the department requires all students to complete Econometrics as well as complete three required 1-unit activity courses (EC3322A; EC4401A; & EC4444A) associated with Economic Statistics (EC3322); Intermediate Microeconomics (EC4401); and Econometrics (EC4444). The addition of these activity courses, which focus on mathematical and statistical problem solving using current software, gives students practice in quantitative modeling, forecasting, and evaluation. These curricular changes reflect the increasingly quantitative nature of the field, and is consistent with the revision of the CIP (Classification of Instructional Programs) codes for both our BS and MS programs to officially classify both programs as “STEM.” This designation will allow our graduates to earn more in specific government jobs, and for international students to qualify for 3-year optional practical training (OPT) visas, instead of 1-year, which allow international students to remain in the U.S. longer.

In addition to general education courses, all economics majors are required to successfully complete the following courses:

- ACC 2070 - Financial Accounting for Decision Making (3)
- COM 2216 - Report Writing (3)
- EC 2201 - Principles of Microeconomics (3)
- EC 2202 - Principles of Macroeconomics (3)
- EC 3322 - Economic Statistics (3)
- EC 3322A - Economic Statistics Activity (1)
- EC 4401 - Intermediate Microeconomics (3)
- EC 4401A - Intermediate Microeconomics Activity (1)
- EC 4403 - Intermediate Macroeconomics (3)

⁷ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/CourseEquityGaps/EquityGaps?.iid=1>

- EC 4444 - Econometrics (3)
- EC 4444A - Econometrics Activity (1)
- EC 4620 - Senior Seminar (3)
- STA 1200 - Statistics with Applications (3) (B4)

Units are indicated in parentheses so this common core consists of 33 total units. Only Statistics currently satisfies a General Education requirement, B4, but the General Education requirements will be revised for the entire CSU system with economic principles again being recognized as a social science.

All economics majors are required to complete a senior seminar (EC 4620) in which they apply quantitative methods to analyze real world economic data, problems, issues, and/or policies.

The three options are General (most flexible), Quantitative (appropriate for those intending graduate study in economics or finance; or career as actuary), and Applied (requiring more practical coursework, including an additional accounting course). As this change was instituted for students starting in Fall 2018 (when CPP converted from quarters to semesters). Table 4 shows only distribution of students by option for recent years and some students did not have an option.

Table 4 Economics BS students by option

Fall:	General	Quantitative	Applied
2020	115	39	34
2021	108	29	47
2022	98	28	36
2023	88	26	31
<i>Source Tableau CPP</i>			

In addition to the core courses listed, the General Option requires 27 additional upper division units in the major, as well as calculus. Both the General and Applied options allow students to complete either Business Calculus (MAT 1250, 3 units) or a course intended for math majors and engineers (MAT 1140, 4 units).

The Applied Option requires the following in addition to core courses:

- ACC 2080 - Managerial Accounting for Decision Making (3)
- EC 4408 - Money and Banking (3)
- EC 4440 - Industrial Organization (3)
- EC 4445 - Economic Forecasting (3)

And either MAT 1140 - Calculus I (4) or MAT 1250 - Introductory Calculus for Business (3); as well as 15 additional upper division units in the major.

The Quantitative Option requires the following in addition to core courses:

- EC 4406 - Mathematical Economics (3)
- EC 4464 - Applied Economic Research (3)
- MAT 1140 - Calculus I (4) (B4)
- MAT 1150 - Calculus II (4) (B4)

as well as 14 additional upper division units in the major.

Comparatively high proportions of students earning a grade below C-, specifically a D, W, or F grade is a feature of most economics programs, and was a more pronounced feature of the Cal Poly Economics department in the past. In recent years our DUF rates have become more similar to those in other disciplines within our College, and Table 3 shows no clear trend in changes to DUF rates for economics classes which have had high rates in the 2020-22 period.

Significant declines in the DUF rates for Economic Principles courses occurred prior to 2017, and so are not visible in the above data. Factors increasing the rates in Economics courses include: a disproportionate number of non-majors (in principles courses) and the technical nature of material (particularly in Economic Statistics, EC 3322, and Intermediate Microeconomics, EC 4401).

2.2 Assessment of Student Learning – Undergraduate

The following is a link to Economics' Annual Assessment Report:

https://www.cpp.edu/assessment/college_of_letters_arts_and_social_sciences.shtml

Table 5 – Curriculum Matrix for BS Economics

Student Learning Outcome	Course Number																																				
	1100	2201	2202	3322	3322A	4401	4401A	4402	4403	4404	4406	4407	4408	4431	4430	4433	4444	4444A	4445	4446	4448*	4449	4434*	4436*	4437	4432	4435	4440	4441	4442	4450	4451	4620	4464*	4480		
SLO 1: Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues	I	I	I	D	D	I	D	D	I	D	D	D	I	D	D	D	D	D	D	D	D	D	I	D	D	D	D	D	D	I	D	D	D	I	M	M	I
SLO 2: Examine and apply economic reasoning, terminology, and models to describe real world issues, events, and policies	I	I	I	D	D	D	D	D	D	D	D	I	D	D	D	D	D	D	D	D	D	D	I	D	D	D	D	D	D	I	D	D	D	I	M	M	I
SLO 3: Acquire mathematical and statistical skills necessary to describe and analyze economic relationships and test economic theories	I	I	I	D	D	I	D	D	D	D	I	D	D	D	D	I	D	I	I	I	I	I	D	I	D	I	D	I	D	D	D	D	D	M	D		
SLO 4: Summarize and critically evaluate the historical, international, and institutional aspects of economic events within a social science framework	I	I	I						D	D		D	D	D	D	D	D	D	D	D	D	D	I	M	D	D	D	D	D	D	D	M	D	M	D	I	
SLO 5: Develop presentation skills to convey economic analysis in written and/or oral form using current technology	I	I	I	D	D				D			D	D		D	D	D	D	D	D	D		D	D	D	D	D	D	D	D	D	D	D	M	M		

Note: I = introduced; D = developed and/or practiced; M = demonstrated mastery; A = Assessed

Table 6 – Alignment Matrix for BS Economics

Program Learning Outcome	PLO/SLO Alignment	Student Learning Outcome	Core Competencies					Strategic Vision		
			Critical Thinking	Information Literacy	Oral Communication	Written Communication	Quantitative Reasoning	Innovation and Creativity	Civic Engagement	Problem Solving
		Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues.	X	X						
		Use mathematical and statistical skills to test economic theories and/or to describe and analyze real world economic relationships, events, and policies.	X				X			X
		Clearly present economic analysis in written and/or oral form using current technology.	X		X	X				

Table 7 – Overall assessment plan for BS Economics

PLO/SLO Alignment	SLOs	Courses where each SLO is addressed.	Assessment activity (signature assignment) used to measure each SLO.	Assessment tool used to measure outcome success	How assessment data will be reported as evidence SLO performance criteria have been met	Designated personnel to collect, analyze, and interpret student learning outcome data for the program	Student learning outcome data dissemination schedule	Closing the loop strategies
	<i>Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues.</i>	<i>EC 4401 EC 4403 EC 4620</i>	<i>Senior Seminar Project</i>	<i>Rubric</i>	<i>Distribution of satisfactory/exceeding expectations scores</i>	<i>Professor of EC4620 and Assessment Committee.</i>	<i>Projects collected end scored at end of Spring. Analyzed in Fall.</i>	<i>Adjustments to grad program discussed in fall meeting. Changes to course approach, research instruction considered.</i>
	<i>Use mathematical and statistical skills to test economic theories and/or to describe and analyze real world economic relationships, events, and policies.</i>	<i>EC 3322 EC 4401 EC 4403 EC 4620</i>	<i>Standardized question on EC322 final and Senior Seminar Project</i>	<i>Scores/fraction passed and Rubric</i>	<i>Distribution of satisfactory/exceeding expectations scores</i>	<i>Professor of EC4620, EC 3322 and Assessment Committee.</i>	<i>Projects and Scores collected end scored at end of Spring. Analyzed in Fall.</i>	<i>Adjustments to grad program discussed in fall meeting. Changes to course approach, research instruction considered.</i>
	<i>Clearly present economic analysis in written and/or oral form using current technology.</i>	<i>EC 4441 EC 4442 EC 4620</i>	<i>Senior Seminar Project</i>	<i>Rubric</i>	<i>Distribution of satisfactory/exceeding expectations scores</i>	<i>Professor of EC4620 and Assessment Committee.</i>	<i>Projects collected end scored at end of Spring. Analyzed in Fall.</i>	<i>Adjustments to grad program discussed in fall meeting. Changes to course approach, research instruction considered.</i>

Table 8 – Assessment Data Collection Timeline for BS Economics

Student Learning Outcome	Academic Year					
	AY 18-19	AY 19-20	AY 20-21	AY 21-22	AY 22-23	AY 23-24
Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>
Use mathematical and statistical skills to test economic theories and/or to describe and analyze real world economic relationships, events, and policies.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>
Clearly present economic analysis in written and/or oral form using current technology.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>
Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>

Use mathematical and statistical skills to test economic theories and/or to describe and analyze real world economic relationships, events, and policies.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>
Clearly present economic analysis in written and/or oral form using current technology.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>
Identify, compare and contrast economic theories and concepts pertaining to micro- and macroeconomic issues.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results to department along with trend. Decide what institutional/assessment changes to make, if any.</i>

3 STUDENTS - Undergraduate

3.1 Student Profile at Admission and Enrollment Undergraduate

The following tables were compiled using the Applicant Profile dashboard on Tableau, providing admission trends.

Table 9 – Admission trends for first-time freshmen⁸

	Fall 2022	Fall 2021	Fall 2020	Fall 2019	Fall 2018
Applied	430	331	318	349	309
Gender					
Female	322	239	212	254	210
Male	108	92	106	94	99
Not Reported	0	0	0	1	0
URM Status					
Non-URM	134	95	97	103	103
URM	296	236	221	246	206
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	142	105	125	118	132
Not 1 st Generation	288	226	193	231	177
Not Reported	0	0	0	0	0
Admitted	390	274	296	261	218
Gender					
Female	290	190	196	179	136
Male	100	84	100	81	82
Not Reported	0	0	0	1	0
URM Status					
Non-URM	269	195	208	191	67
URM	121	79	88	70	151
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	127	85	115	83	87
Not 1 st Generation	263	189	181	178	131
Not Reported	0	0	0	0	0
Enrolled	35	17	41	22	24
Gender					
Female	25	12	32	16	19
Male	10	5	9	6	5
Not Reported	0	0	0	0	0
URM Status					
Non-URM	19	9	26	13	15
URM	16	8	15	9	9
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	15	9	19	6	12
Not 1 st Generation	20	8	22	16	12
Not Reported	0	0	0	0	0

*Note: Students who did not report their demographics or are nonbinary are counted as "Not Reported".

⁸ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/ApplicantProfile/AdmissionsCustomTable?iid=1>

Table 10 – Admission trends for transfer students⁹

	Fall 2022	Fall 2021	Fall 2020	Fall 2019	Fall 2018
Applied	196	204	212	207	196
Gender					
Female	40	49	52	48	44
Male	156	155	160	159	152
Not Reported	0	0	0	0	0
URM Status					
Non-URM	134	150	137	133	136
URM	62	54	75	74	60
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	92	106	111	109	98
Not 1 st Generation	104	98	101	98	98
Not Reported	0	0	0	0	0
Admitted	113	126	197	189	126
Gender					
Female	30	30	49	46	33
Male	83	96	148	143	93
Not Reported	0	0	0	0	0
URM Status					
Non-URM	76	92	130	120	84
URM	37	34	67	69	42
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	51	71	102	101	65
Not 1 st Generation	62	55	95	88	61
Not Reported	0	0	0	0	0
Enrolled	12	31	32	40	31
Gender					
Female		7	10	9	3
Male		24	22	31	28
Not Reported		0	0	0	0
URM Status					
Non-URM		25	18	20	14
URM		6	14	20	17
Not Reported		0	0	0	0
1st Generation Status					
1 st Generation		16	14	27	18
Not 1 st Generation		15	18	13	13
Not Reported		0	0	0	0

*Note: A demographic breakdown is not provided for cohorts with less than 15 students.

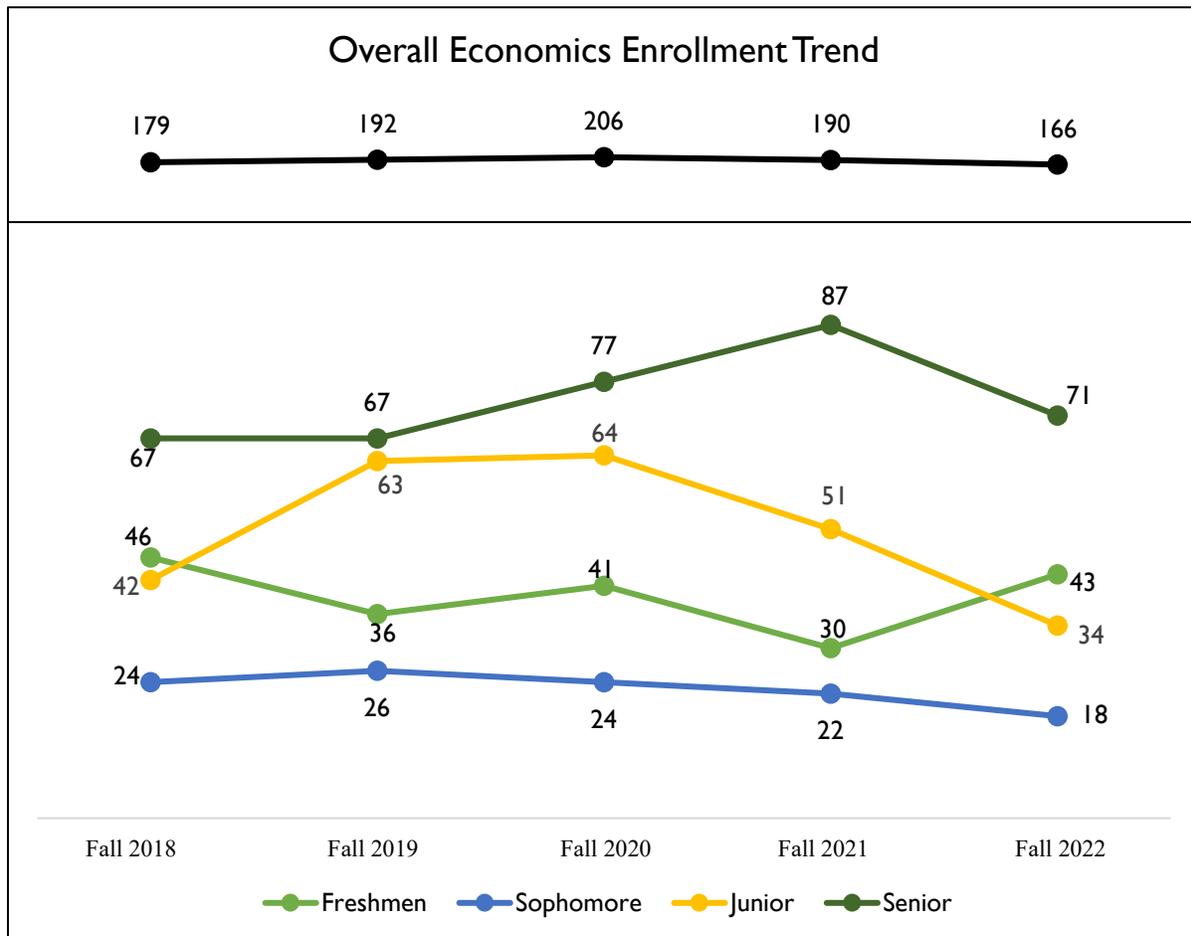
⁹ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/ApplicantProfile/AdmissionsCustomTable?iid=1>

Table 11 and Figure 3 provide enrollment trends for the program.

Table 11 – Enrollment trends for all students¹⁰

Enrollment Trends					
Term	Overall Program	Freshmen	Sophomore	Junior	Senior
Fall 2018	179	46	24	42	67
Fall 2019	192	36	26	63	67
Fall 2020	206	41	24	64	77
Fall 2021	190	30	22	51	87
Fall 2022	166	43	18	34	71

Figure 3 – Enrollment headcount for all students majoring in Economics



¹⁰ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/EnrollmentTrend/EnrollmentTrend?iid=1>

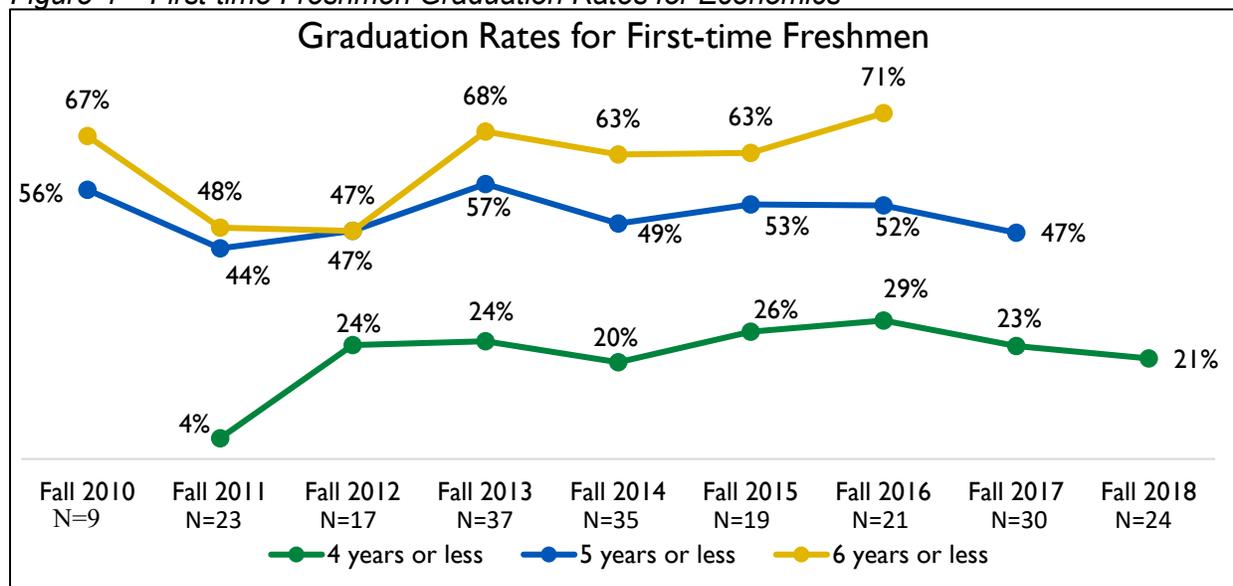
The demographic composition of our students largely reflects that of the University with most of our majors identifying as Hispanic/Latino and Asian. Tables 3a and 3b indicate underrepresentation of Black/African American and female students, and that these demographic regularities exist for both first-time-freshmen and transfers.

Nearly half of our students identify as underrepresented minority (URM) and again roughly half are first generation. Thus, our program effectively offers a path to more highly compensated careers for our students who might not otherwise have such an opportunity.

3.2 Student Retention and Graduation Rates – Graduation Initiative 2025

Figure 4 provides graduation data for students entering the Economics major as First-Time Freshmen only. Any on-campus transfers who started in another major as a freshman are not accounted for in the First-Time Freshmen Graduation Rates for Economics. The figure below shows that 67% of student who started in 2010 graduated in six years or less, 56% of students who started in 2010 graduated in five years or less, and 4% of students who started in 2011 graduated in four years or less.

Figure 4 – First-time Freshmen Graduation Rates for Economics¹¹

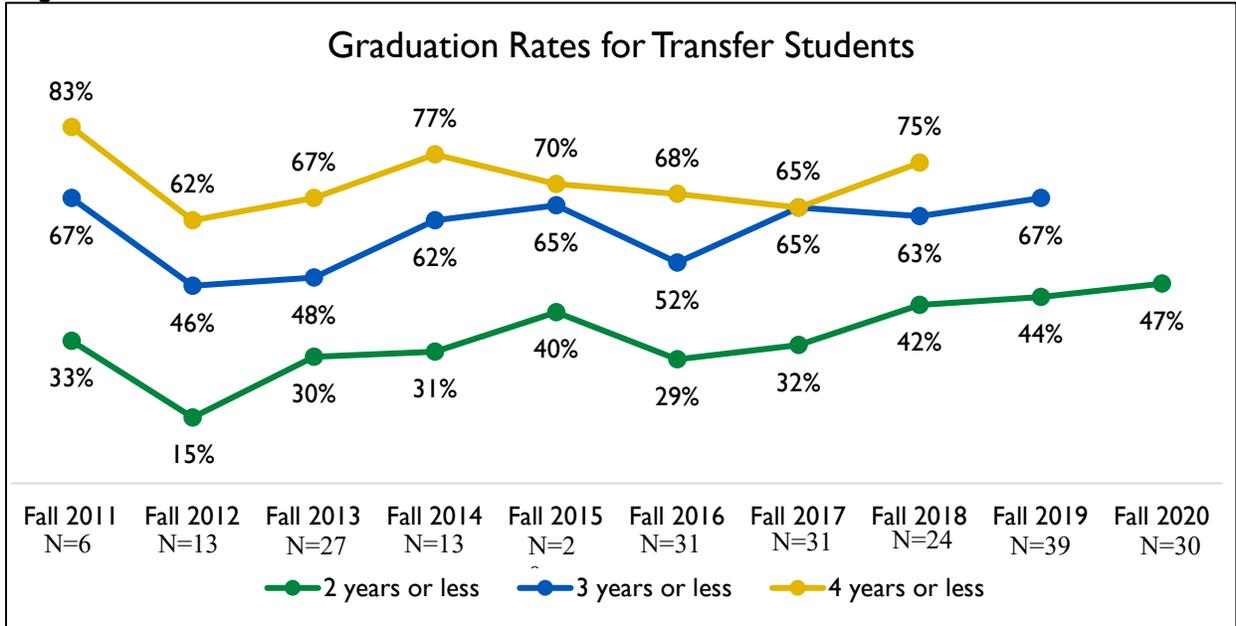


Note: Timeline indicates the entering cohort year

¹¹ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/GraduationRatesDashboard/FTFGradRates?iid=2>

Figure 5 provides graduation data for students entering as an Economics major as off-campus fall term Transfers. Any transfers entering in a term other than fall or are on-campus transfers are not accounted for in the Fall Entering Transfer Graduation Rates for the Economics program. The figure below shows that 33% of transfer students who started in 2011 graduated in two years or less and 83% of those who started in 2011 graduated in four years or less.

Figure 5 – Transfer Student Graduation Rates for Economics¹²



¹² Source: Tableau <https://analytics.cpp.edu/#/site/production/views/GraduationRatesDashboard/FTFGradRates?iid=2>

Table 13 summarizes the changes in graduation rates for first-time freshman and transfers over the period 2012 to 2020.

Table 13 - Progress To Degree - CPP & Economics					
First Time Freshman - Percent Graduation Rates					
	4-year			6-year	
	CPP	Econ		CPP	Econ
2018-22	33.7%	21%			
2017-21	29.1%	23%			
2016-20	26.5%	29%	2016-22	66.3%	71%
2015-19	28.4%	26%	2015-21	70.2%	63%
			2014-20	67.4%	63%
			2013-19	69.4%	68%
Transfers - Percent Graduation Rates					
	2-year			4-year	
	CPP	Econ		CPP	Econ
2020-22	29.0%	47%			
2019-21	33.1%	42%			
2018-20	27.9%	42%	2018-22	79.5%	75%
2017-19	24.5%	32%	2017-21	79.2%	65%
2016-18	32.3%	29%	2016-20	77.2%	38%
			2015-19	74.4%	70%
			2014-18	80.0%	77%

Data reported and analyzed in this section are from the CSU Dashboards: accessible online at: <https://csusuccess.dashboards.calstate.edu/>

The analysis can be separated into two parts: performance of first-time freshman; performance of transfer students. Four-year graduation rates for economics students is lower than for the university overall, and the gap is not narrowing; but interestingly the gap for 6-year graduation rates was much smaller, narrowing, and in fact reversed for the cohort entering in 2016.

Although the CSU system has goals for both measures, the 6-year rate may be particularly relevant. The Economics department encourages students to consider minors and double-majors. While these reduce four-year graduation rates, they can noticeably increase post-graduation success. Our two most successful graduates in recent years double-majored in Economics and Math (and both were valedictorian of the College of Science when they graduated). Currently at least two students are pursuing double-majors in Political Science and Economics – a viable substitute for a Political Economy degree popular at elite institutions, but not available at Cal Poly. Such a combination is ideal for students considering law. Moreover, a minor in a business can be practical, with the business background particularly helpful in obtaining an entry-level career position, and economics providing the background necessary for more rapid promotion to positions of greater responsibility and scope as one’s career advances.

Some economics students select a business-related minor such as Contract Management, partly because many of the required courses overlap with those for the Economics BS. Some faculty have personally observed that students with work experience during college obtain superior positions post-graduation and so advise students to get a job, ideally on-campus or

connected to school, and stay in the position for at least one year. This clearly provides evidence of the job candidates reliability and stability.

To be sure, some students take longer to graduate for reasons unrelated to improving their employability post-graduation. To reduce unproductive extensions of the time to graduate, improvements in advising and community building can play a role. The expansion of the Student Success Center has benefited economics students greatly. It could be even more effective if the staff turnover were reduced, perhaps by increased compensation (for example a truly outstanding advisor who understood the economics department well left over a year ago; fortunately an excellent replacement was eventually hired, but he is still learning the details of the departments he advises).

Incorrect articulation of transfer courses has caused problems for students resulting in extending their time to graduation. If a student's official record does not correctly indicate courses required, they take courses that are not needed, and/or do not take ones required. This delays graduation unnecessarily. It appears in recent years that this problem has been recognized and full-time professional staff are now processing transcripts of transfer students to minimize errors. Fortunately, this frustrating problem is now less common and when a problem does arise, the CLASS Success Center advisors take the lead in notifying the registrar's office and following through to be sure the issue is resolved.

Analysis of the performance of underrepresented minorities (URMs) relative to non-URM students, URM gaps, is affected by the fact that Cal Poly is a URM majority institution. This is also true of the Economics department where Hispanic/Latino students are the largest group, with Asians the second largest group. One area in which the economics department is less diverse than the university is with respect to gender – with males comprising significantly more than half our students, both in our undergraduate and graduate programs.

The figures below depict six-year graduation rates for underrepresented minorities (URM) and Pell-eligible First-time freshmen majoring in Economics. Figure 6 indicates that 33% of URM students and 53% of non-URM students who started in 2011 graduated in six years or less. Figure 7 below indicates that 50% of students who receive the Pell Grant and 46% of students who started in 2011 graduated in six years or less.

Figure 6 – First-time Freshmen URM Gap for Economics¹³

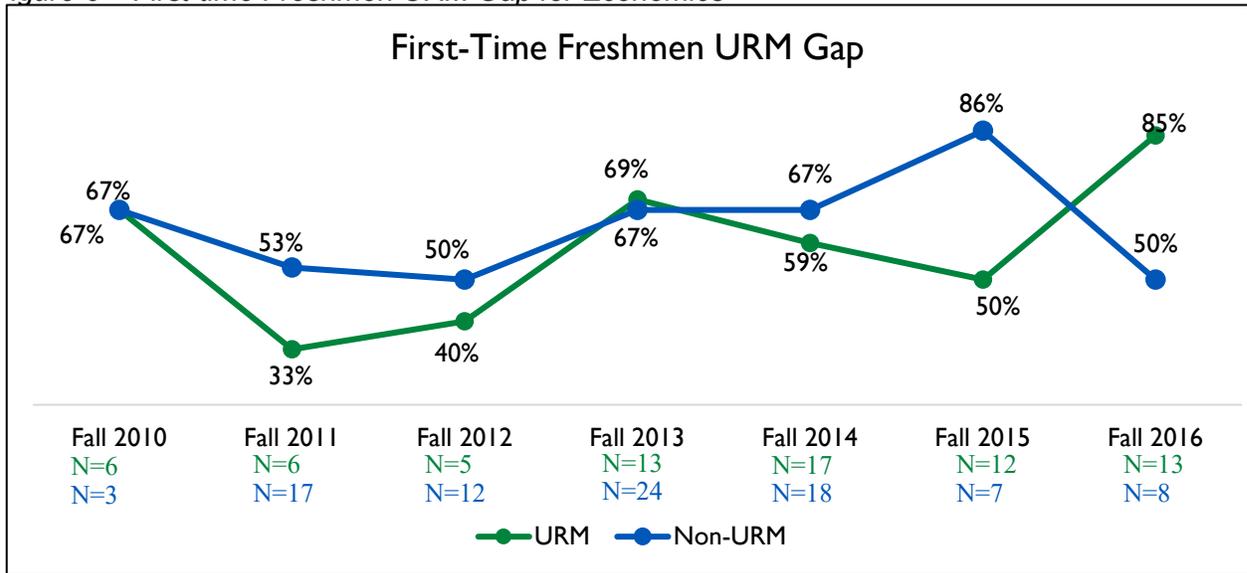
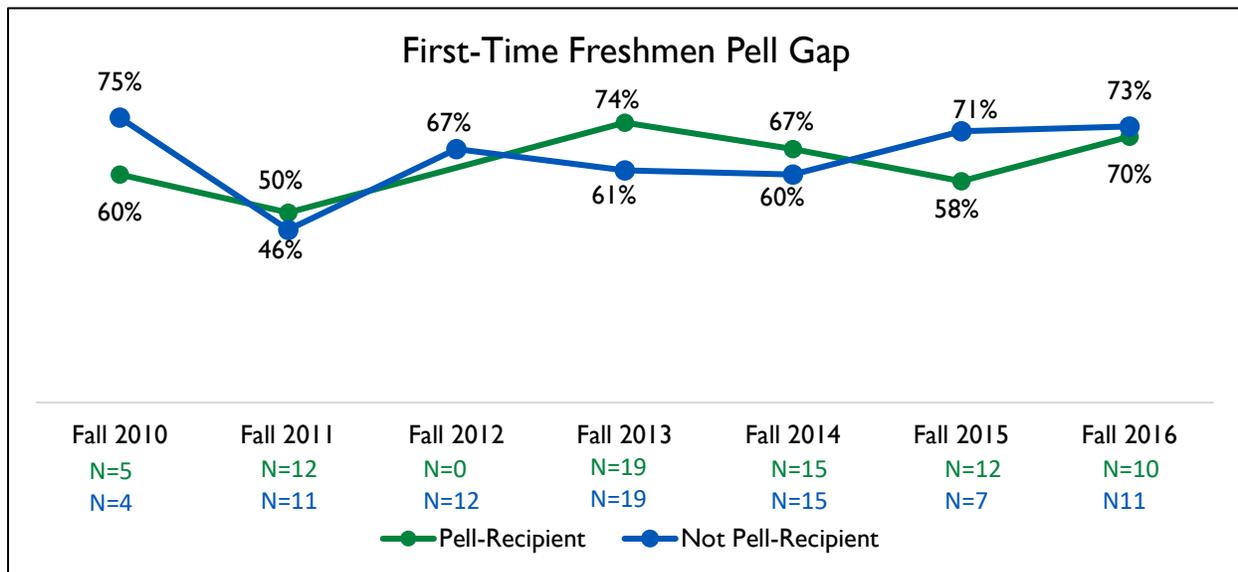


Figure 7 – First-time Freshmen Pell Gap for Economics¹⁴



¹³ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/GraduationRatesDashboard/FTFGradRates?iid=2>

¹⁴ Source: Tableau https://analytics.cpp.edu/#/site/production/views/GraduationRates_0/FTFPellGap?iid=2

Table 14 and Figure 8 provide a snapshot of starting degree vs graduation degree.

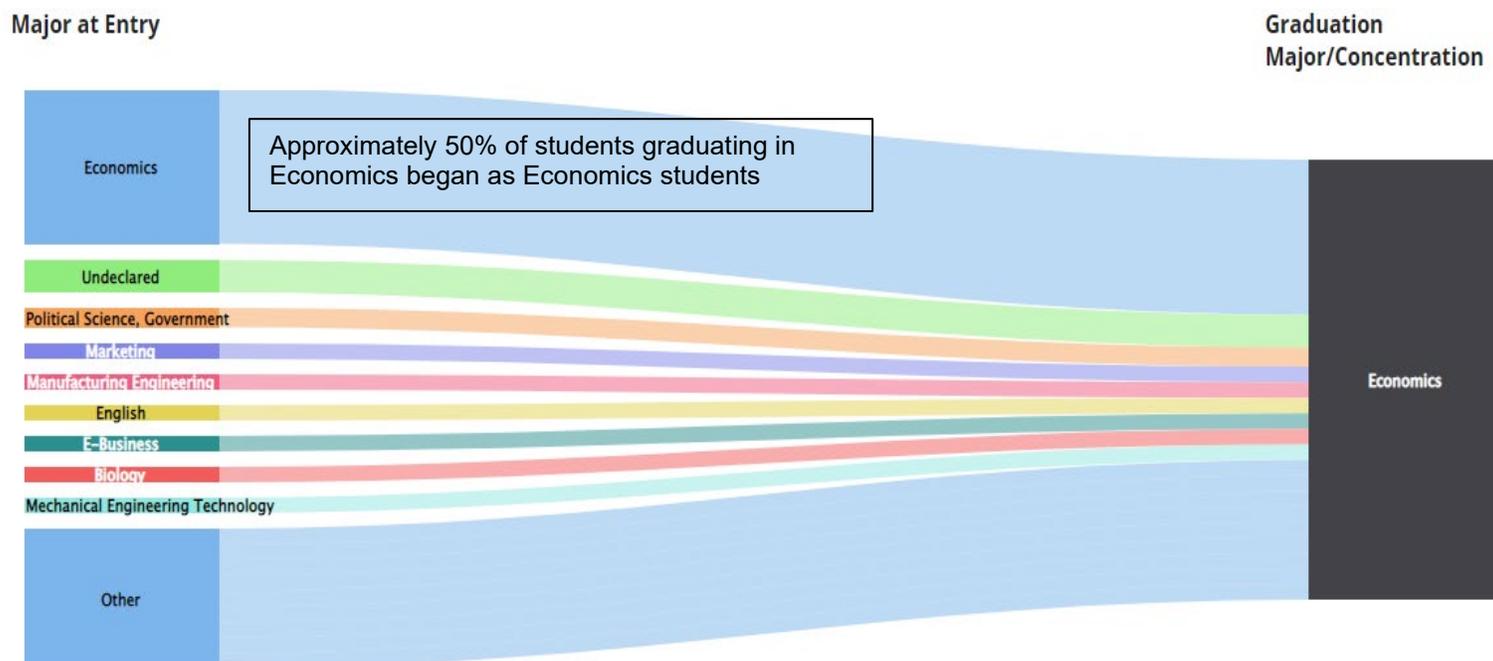
Table 14 – Snapshot of Starting Degree for Student Population¹⁵

Major at Entry	Major at Graduation	# Students
Economics	Economics	24
Undeclared	Economics	5
Political Science, Government	Economics	3
Marketing	Economics	2
Electronic Engineering Technology	Economics	1
Computer Science	Economics	1
Accountancy	Economics	1
Mechanical Engineering	Economics	1
Manufacturing Engineering	Economics	1
English	Economics	1
E-Business	Economics	1
Biology	Economics	1
Mechanical Engineering Technology	Economics	1
Gender, Ethnic, Women's Studies	Economics	1
Civil Engineering	Economics	1
Physics	Economics	1
Mathematics	Economics	1
Landscape Architecture	Economics	1

**The information above is for first-time full-time freshmen who graduated in 2020, 2021, or 2022*

¹⁵ CSU Dashboard “What Paths Do They Follow” Report <https://csusuccess.dashboards.calstate.edu/public/db-what-paths-do-they-follow>

Figure 8 – CSU Major Migration for all First-Time Freshmen Who Graduated in 2020, 2021, 2022¹⁶



The figure above shows movement of first-time-freshmen who entered as economics majors at CPP to others. The only noticeable pattern is movement to disciplines in the College of Business. Perhaps some students didn't realize Economics is not in the College of Business. It also shows a majority of Economics majors did not start in the major. The only surprise is that so few of those moving to the Economics Department are from engineering. It has been very common at CPP, as elsewhere, for students starting with a major in engineering switch to economics. It is likely this flow was restricted by the removal of economic principles from general education at CPP. Since Fall 2020 engineering students have typically not taken economics as a GE course, have not been exposed to it, and so are less likely to consider it a viable option.

This flow between majors should be considered an inherent flaw. Perhaps better information could have helped applicants make choices more likely to be consistent with their future interests and aspirations, but in so far as this movement is the result of acquisition of information about the nature of the different disciplines and likely employment after graduation, it would be harmful to prevent students from moving to a more appropriate major.

The figure below shows graduation rates for economics majors from the cohort entering in 2017 is slightly lower at 4-years, but equal to the CPP Average at 6 years; persistence rate is slightly higher, average units slightly lower, and average GPA lower at graduation compared with CPP students overall. Perhaps units at graduation have been lowered by advising students now

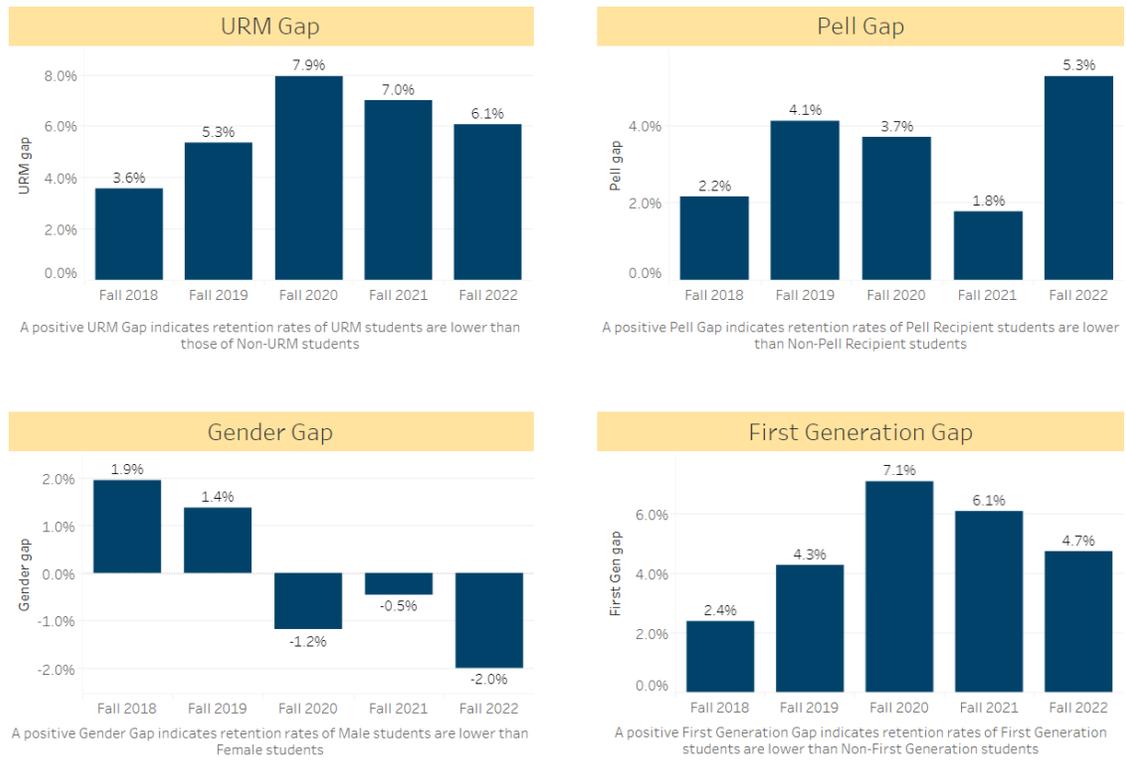
¹⁶ CSU Dashboard "What Paths Do They Follow" Report <https://csusuccess.dashboards.calstate.edu/public/db-what-paths-do-they-follow>

receive at the CLASS Student Success center, and the relatively lower GPA could be either the result of stricter grading in economics classes, or from students with a low GPA in disciplines like engineering moving to economics.

Figure 9 CPP Students Overall

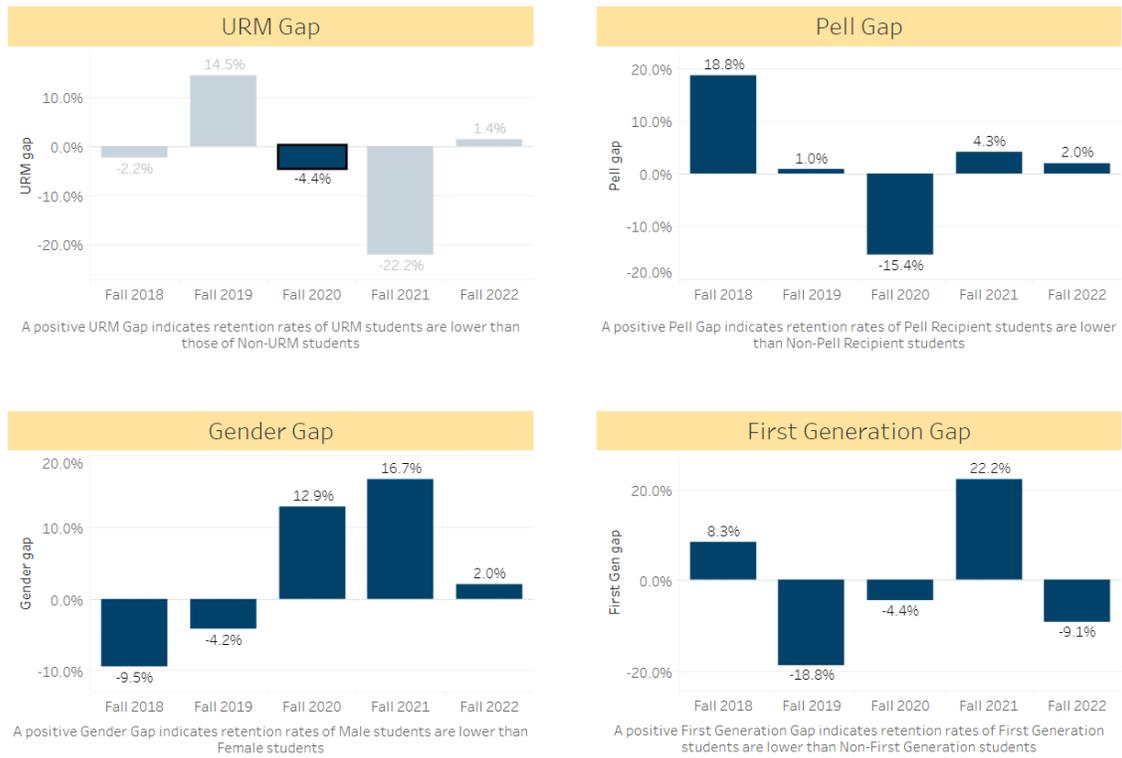


Figure 10 Retention Gaps - CPP Students Overall



The figures reveal retention gaps in the expected direction for CPP students overall, except for Female students where the Gap is negative in 2020, 21 & 22 indicating retention is greater for women than men. The opposite is true for economics students where the group with the clearest positive gap in 2020, 21, & 22 is Females. This may indicate that the department should redouble its effort to provide a supportive environment, especially for women.

Figure 11 Retention Gaps - Economics Students



3.3 Student Support, Satisfaction and Services Undergraduate

3.3.1 Co-Curricular

The Department has two extra-curricular organizations: i) The Economics Club and ii) Omicron Delta Epsilon - Economics Honor Society. Professor Hwu is the official advisor for the former and Professor Nguyen for the latter

The club has brought speakers to campus; had meetings; organized hikes, etc.

In the past they attended economics conferences in Las Vegas and visited the San Francisco Federal Reserve Bank.

Publicity has been supported by a student assistant (SA), funded by GI2025 funds which our Department Administrative Support Coordinator (ASC) Stephanie Gonzalez lobbied for. The SA (Andrew Pasten) created a department Canvas site to share information. He also posted information on the club LinkedIn site, and Instagram.

In 2023/24 speakers from Chase; East West Bank and Alger Precision Machining, LLC visited economics classes. Professor Jason Chang often brings guest speakers from different sectors of the real estate industry to his Industry Studies class EC 4441.

The department Chair posted information regarding the Department on Facebook and solicited responses to the department survey

Our ASC contacted alumni to invite to our spring networking event in 2023 and dramatically increased attendance. This has been the main department event for years. We formerly announced scholarship recipients at this event, but the earlier budget deadlines will require us to have the event earlier (March 28 this Spring) which is before the deadline for scholarships.

The department offers four scholarships made possible by generous donations which funded endowments, by three former faculty colleagues: i) Sid Blumner; ii) Franklin Ho; and iii) George Galbraith.

The four scholarships are:

- 1) Blumner-Franklin Economics Scholarship for Transfer Students
- 2) Blumner-Franklin Economics Scholarship
- 3) Dr. Franklin Ho Endowed Scholarship in Graduate Economics
- 4) George Galbreath Scholarship

3.3.2 Academic Advising

Academic advising for undergraduates is primarily done by the department Chair with the assistance of the CLASS student success center and Bronco Advising.

Graduate advising is coordinated by the Graduate Coordinator, currently Professor Shih-Tang Hwu with the assistance of the former Graduate Coordinator Carsten Lange.

3.3.3 Student Satisfaction

In Fall 2023 the Department administered a survey. Emails were sent by alumni affairs, as well as directly by the Chair, Bruce Brown to emails of alums he has remained in contact with. Emails were also sent to the Cal Poly addresses of alumni who had graduated in 2022 and 2023. In addition, links to the surveys were posted on Linked-In and Facebook.

The Department received 85 responses, 57 from alumni who had earned their BS; 22 their MS; and 6 who had earned both at Cal Poly. Three of respondents had earned a double-major. Nine of the respondents had earned a minor at Cal Poly. Respondents reported graduation dates from 2006 to 2023.

Of the 85 total respondents, four entered PhD programs; 23 pursued masters degrees; and six attended other graduate training. Respondents reported the following fields of graduate study:

- Economics = 8
- Business analytics = 3
- MBA
- Analytics
- Finance
- Computational Analytics
- Data Analysis
- Sport Management
- Education

- Tourism and Recreation Management
- Public Policy
- Statistics M.S.
- GIS
- Biblical Studies
- MBA - Management & Leadership
- Business Development and Entrepreneurship
- Information Systems

A question regarding current employment status received 79 responses with 80% employed full-time; 9% part-time; 6% pursuing further education or training full-time; and 4% not employed and looking for work. For those employed, 79% reported their Degree from Cal Poly was part of the consideration for their current position.

When asked to rank the importance of eight aspects of their education relevant for their career the rank from most to least important was:

- 1) Applied Economic courses (e.g., Econometrics)
- 2) Economic Theory courses (e.g., Intermediate Microeconomics)
- 3) Economics Faculty
- 4) General Education
- 5) Participating in Research
- 6) Clubs Related to Major
- 7) CLASS Student Success Center advisors
- 8) Bronco Advising Center

These results may have been affected by the source of the survey. If the CLASS Student Success Center had distributed the survey, it is likely respondents would have reported their impact as more significant. Moreover, some of the respondents graduated before the CLASS Student Success Center existed

Four responses were allowed in response to the following two statements:

- 1) My program effectively promoted activities that occurred outside of the classroom (i.e., campus clubs, competition teams, research, etc.).
- 2) Personal interactions between you and your professors/advisors were encouraged.

Table 15 Survey responses to four statements

	Strongly Disagree	Disagree	Agree	Strongly Agree	Responses
Statement #1	6.0%	26.9%	49.3%	17.9%	67
Statement #2	3.0%	4.6%	43.9%	48.5%	66

It is encouraging that the respondents tended to agree with statement #2 regarding the importance of interactions with their professors. But the responses also indicate we can do more to encourage extra-curricular activities outside the classroom for our students.

Four responses were allowed in response to the following four questions:

- 1) Cultivate your communication skills with regard to writing and public speaking
- 2) Prepare you to be a life-long learner in your field of study
- 3) Encourage personal leadership development
- 4) Encourage and educate you on the available technologies applicable to your professional success
- 5) Encourage you to think critically/use analytical problem-solving skills
- 6) Support collaborative learning efforts among your peers in your discipline
- 7) Support collaborative learning efforts outside your discipline

Table 16 Responses to program effectiveness questions

	Not Effective	Somewhat Effective	Effective	Very Effective	Total
Question #1	7.3%	31.9%	42.0%	18.8%	69
Question #2	1.5%	17.4%	37.7%	43.5%	69
Question #3	14.5%	31.9%	27.5%	26.1%	69
Question #4	5.8%	29.0%	43.5%	21.7%	69
Question #5	0.0%	7.3%	36.2%	56.5%	69
Question #6	1.5%	20.3%	42.0%	36.2%	69
Question #7	14.5%	37.7%	26.1%	21.7%	69

Interestingly the department seems to do best at encouraging critical thinking and problem solving, and preparing students to be life-long learners. The two questions with the weakest response concerned personal leadership and collaborative learning outside the discipline; and this indicates perhaps the department should devote more attention to developing these skills.

It was edifying to read the free response answers. Generally comments were positive, if often not specific, e.g.. “a shout-out to Professor X.” Some critical comments mentioned that software used in the past (EViews) was not used outside of academia. This problem has been resolved with current faculty using more popular software such as R for statistics and Python for programming.

3.4 Stakeholders

Alumni, current students, faculty (current and past - both in the department and outside the department); others in and connected to the university and the local community. The previous section addressed alumni directly, and indicated the department’s success in preparing graduates for meaningful lives, further education and successful careers.

4 PROGRAM EVALUATION –GRADUATE

4.1 Curriculum and Pedagogy –Graduate

The catalog entry for the MS program may be found here: [link](#)

The degree requires a total of 36 units. Typical courses taken by term (all 3 unit) are:

Fall Year 1

- EC 5501 - Graduate Microeconomics Preparation
- EC 5502 - Graduate Quantitative Preparation
- EC 5503 - Graduate Macroeconomics Preparation

Spring Year 1

- EC 5550 - Microeconomic Analysis
- EC 5551 - Macroeconomic Analysis
- EC 5552 - Graduate Econometrics I

Fall Year 2

- EC 5553 - Graduate Econometrics II
- EC 66XX - Graduate Level Elective
- EC 4XXX = Free elective course, may be upper division undergraduate

Spring Year 2

- EC 66XX - Graduate Level Elective
- EC 6692 - Graduate Research Practicum I
- EC 6693 - Graduate Research Practicum II

Each student must take 12 units of major required courses, 6 units of graduate 6600-level elective courses, and the 2 culminating experience courses. Courses for the balance of the 36 units are selected by the individual student in the area of interest or specialization with the advice and consent of the graduate coordinator.

Graduate Elective courses are:

EC 6630 - Advanced Environmental Economics
EC 6631 - Advanced Natural Resource Economics
EC 6654 - International Finance
EC 6655 - International Trade
EC 6656 - Capital Markets I
EC 6657 - Capital Markets II
EC 6660 - Graduate Public Finance

Exceptional students may complete a MS Thesis (EC 6960) in lieu of the Graduate Research Practicum courses (EC 6692 & 6693). 6000-level courses are offered on a rotating basis, with a different topic offered each semester.

A total of 12 units of 4000-level that are above 4403 or 5001-5003 economics courses may be taken as electives with the approval of the graduate coordinator; but 4000-level courses are not acceptable if an equivalent graduate courses is offered or if a student has taken the class as an undergraduate.

4.2 Assessment of Student Learning – Graduate

Table 17 – Curriculum Matrix for MS Economics

Student Learning Outcome	Course Number																
	5501	5502	5503	5550	5551	5552	5553	6630	6631	6654	6655	6656	6657	6692	6693	6696	6699
SLO 1: The ability to identify, compare, and apply a broad range of economic theories and concepts in the analysis of economic events and government policies.	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	
SLO 3: The collection, presentation, and analysis of economic cross-section or time-series data according to professional standards with the appropriate methods of statistical inference and technology.	I D M	I D M	I D M	I D M	I D M	I D M	I D M	D M									
SLO 3: The use of mathematical tools in economic theory and modeling. (NOTE: The student should be able to derive some important relationships set by the theory, and should draw conclusions based on economic models.)	I D	I D	D			D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	D M	

Note: I = introduced; D = developed and/or practiced; M = demonstrated mastery; A = Assessed

Table 18 – Alignment Matrix for MS Economics

Program Learning Outcome	PLO/SLO Alignment	Student Learning Outcome	Graduate Institutional Learning Outcomes				Strategic Vision		
			GILO1	GILO2	GILO3	GILO4	Innovation and Creativity	Civic Engagement	Problem Solving
		(1) The ability to identify, compare, and apply a broad range of economic theories and concepts in the analysis of economic events and government policies.			X				X
		(2) The collection, presentation, and analysis of economic cross-section or time-series data according to professional standards with the appropriate methods of statistical inference and technology.	X	X	X	X	X		X
		(3) The use of mathematical tools in economic theory and modeling. (NOTE: The student should be able to derive some important relationships set by the theory, and should draw conclusions based on economic models.)			X		X		X

Table 19 – Overall assessment plan for MS Economics

PLO/SLO Alignment	SLOs	Courses where each SLO is addressed.	Assessment activity (signature assignment) used to measure each SLO.	Assessment tool used to measure outcome success	How assessment data will be reported as evidence SLO performance criteria have been met	Designated personnel to collect, analyze, and interpret student learning outcome data for the program	Student learning outcome data dissemination schedule	Closing the loop strategies
	<i>(1) The ability to identify, compare, and apply a broad range of economic theories and concepts in the analysis of economic events and government policies.</i>	<i>EC 5550 EC 5551 EC 6692 EC 6693</i>	<i>Master's Project</i>	<i>Rubric</i>	<i>Distribution of satisfactory/exceeding expectations scores</i>	<i>professor of EC6692/6693 and Assessment Committee</i>	<i>Projects collected end scored at end of Spring. Analyzed in Fall.</i>	<i>Adjustments to grad program discussed in Fall meeting. Changes to course approach, research instruction considered.</i>
	<i>(2) The collection, presentation, and analysis of economic cross-section or time-series data according to professional standards with the appropriate methods of statistical inference and technology.</i>	<i>EC 5550 EC 5551 EC 5552 EC 5553 EC 6692 EC 6693</i>	<i>Master's Project, (Econometrics Project)</i>	<i>Rubric</i>	<i>Distribution of satisfactory/exceeding expectations scores</i>	<i>professor of EC5552,5553,6692,6693,6696 and Assessment Committee</i>	<i>Projects collected end scored at end of Spring. Analyzed in Fall.</i>	<i>Adjustments to grad program discussed in fall meeting. Changes to course approach, research instruction considered.</i>
	<i>(3) The use of mathematical tools in economic theory and modeling. (NOTE: The student should be able to derive some important relationships set by the theory, and should draw conclusions based on economic models.)</i>	<i>EC 5550 EC 5551 EC 5552 EC 5553 EC 6692 EC 6693</i>	<i>Standard theory questions in final exams.</i>	<i>scores/fraction passed</i>	<i>Fraction passed, distribution of scores</i>	<i>professors of EC5501, 5550, 5502, 5551 and Assessment Committee</i>	<i>Scores collected Fall & Spring. Analyzed by Micro & Macro profs.</i>	<i>Adjustments to pedagogy, course structure considered.</i>

Table 20 – Assessment data collection timeline for MS Economics

Student Learning Outcome	Academic Year					
	AY 18-19	AY 19-20	AY 20-21	AY 21-22	AY 22-23	AY 23-24
(1) The ability to identify, compare, and apply a broad range of economic theories and concepts in the analysis of economic events and government policies.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>
(2) The collection, presentation, and analysis of economic cross-section or time-series data according to professional standards with the appropriate methods of statistical inference and technology.	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>
(3) The use of mathematical tools in economic theory and modeling. (NOTE: The student should be able to derive some important relationships set by the theory, and should draw conclusions based on economic models.)	<i>Develop questions & rubric</i>	<i>Present last year's results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last 2 years of results to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>	<i>Present last year's results along with time trend to department. Decide what institutional/assessment changes to make, if any.</i>

The following is a link to Economics' Annual Assessment Report:

https://www.cpp.edu/assessment/college_of_letters_arts_and_social_sciences.shtml

5 STUDENTS - GRADUATE

5.1 Student Profile at Admission and Enrollment Graduate

Table 21 shows applicants to the Departments MS program over time. One can see the program receives fewer applications from females and enrollment is skewed toward males as well. This is a feature of most economics programs, but one the department seeks to address.

Table 21 – Admission trends for graduate students¹⁷

	Fall 2022	Fall 2021	Fall 2020	Fall 2019	Fall 2018
Applied	32	28	34	19	35
Gender					
Female	6	8	11	5	16
Male	20	20	23	14	19
Not Reported	0	0	0	0	0
URM Status					
Non-URM	21	17	26	13	29
URM	10	11	8	6	6
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	7	5	14	8	15
Not 1 st Generation	24	23	20	11	20
Not Reported	0	0	0	0	0
Admitted	17	17	29	18	26
Gender					
Female	2	4	9	5	13
Male	15	13	20	13	13
Not Reported	0	0	0	0	0
URM Status					
Non-URM	11	8	23	12	21
URM	6	9	6	6	5
Not Reported	0	0	0	0	0
1st Generation Status					
1 st Generation	5	3	11	7	11
Not 1 st Generation	12	14	18	11	15
Not Reported	0	0	0	0	0
Enrolled	7	4	10	7	10
Gender					
Female					
Male					
Not Reported					
URM Status					
Non-URM					
URM					
Not Reported					
1st Generation Status					
1 st Generation					
Not 1 st Generation					
Not Reported					

*Note: A demographic breakdown is not provided for cohorts with less than 15 students.

The department would like to increase enrollments and so encourage more applications. Toward this end, the department has applied for reclassification as a STEM (“science, technology, math and engineering”) discipline. Our proposal is currently before the Cal Poly

¹⁷ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/ApplicantProfile/AdmissionsCustomTable?iid=1>

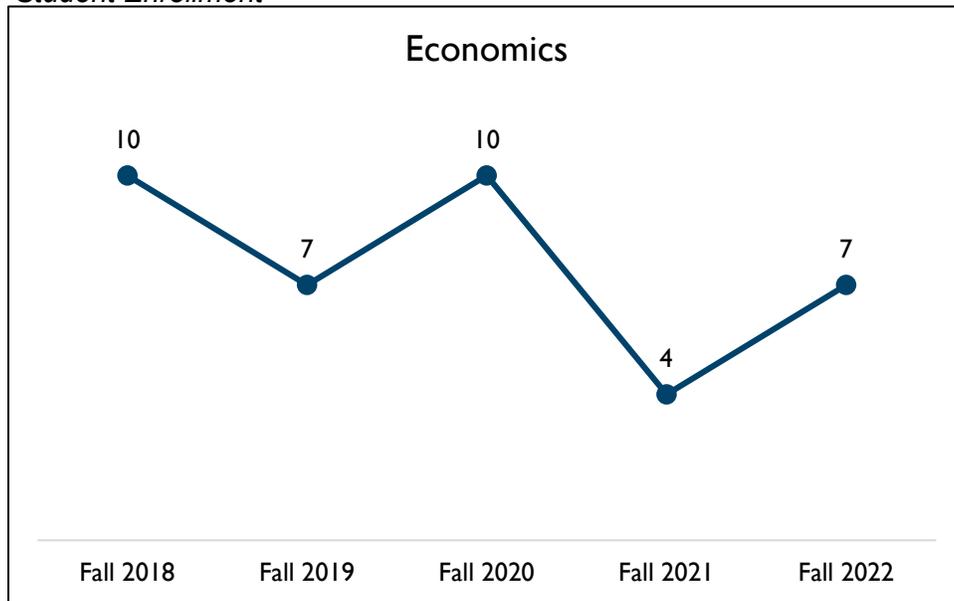
Pomona Academic Senate. It appears our proposal will be approved and forwarded to the Chancellor’s Office in order to update the associated “Classification of Instructional Programs” (CIP) code, to reflect the quantitative nature of our current program. This will allow those earning the MS to apply for 3-year Optional Practical Training (OPT) visas. International students have been disproportionately represented in our program over many years, so this change will likely have a significant impact on the number of applicants. Potential applicants have contacted the department and decided not to apply because we were not classified as STEM. In the past the department received many applications from students from Saudia Arabia. The number has recently declined, likely do to the fact that competing institutions had already been classified as STEM. Upon our reclassification the Department will contact the Saudia Arabian Cultural Mission (SACM), an organization providing guidance and support to Saudi students seeking to study in the U.S.

Table 22 and Figure 12 provide enrollment trends for the graduate program. While the low number in Fall 2021 was likely affected by the pandemic, there has been a declining trend since before 2018. The department plans to update our website to encourage more applicants from qualified students.

Table 17 – Enrollment Data by Major¹⁸

	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022
Economics	10	7	10	4	7

Figure 9 – Student Enrollment¹⁹



¹⁸ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/EnrollmentTrend/EnrollmentTrend?iid=1>

¹⁹ Source: Tableau <https://analytics.cpp.edu/#/site/production/views/EnrollmentTrend/EnrollmentTrend?iid=1>

5.2 Student Retention and Graduation Rates

Tables 23 and 24 show cumulative continuation and graduation rates by fall cohorts and were obtained by IRPA. They show cumulative continuation and graduation rates by Fall cohorts since 2005. One can see the program was significantly larger in the years surrounding 2010 as students applied to graduate schools, including ours, during the economic downturn. Many students who earned their MS degrees during this period are now quite successful. The department plans to reach out to them for support and to help endorse the program in order to increase applications. They have in the past spoken to our students, both undergraduates and graduates, and the department plans to co

Table 23 – Cumulative Graduation & Continuation Rates by Headcount²⁰

Year	Cohort Headcount	Cumulative Graduation & Continuation Rates							
		Within 1 Year		Within 2 Years		Within 3 Years		Within 4 Years	
		Cont.	Graduate	Cont.	Graduate	Cont.	Graduate	Cont.	Graduate
Fall 2005	6	6	0	5	1	2	2	0	4
Fall 2006	11	6	1	5	2	3	4	2	5
Fall 2007	20	12	0	6	2	2	4	1	5
Fall 2008	14	11	0	8	0	4	3	0	7
Fall 2009	10	10	0	6	0	2	2	0	5
Fall 2010	28	17	1	9	8	5	10	0	15
Fall 2011	19	12	0	9	2	2	9	0	10
Fall 2012	17	8	0	2	3	0	5	0	5
Fall 2013	13	4	0	2	3	0	4	0	4
Fall 2014	19	12	0	7	3	2	7	1	9
Fall 2015	13	11	0	10	2	1	9	0	9
Fall 2016	11	9	0	5	3	0	6	0	7
Fall 2017	12	7	0	3	4	1	6	1	6
Fall 2018	10	9	0	3	3	0	7	0	8
Fall 2019	7	7	0	3	2	0	4		
Fall 2020	10	7	0	2	3				
Fall 2021	4	3	0						
Fall 2022	7								

²⁰ Source: IRPA data request for Continuation and Graduation Rates

Table 24 – Cumulative Graduation & Continuation Rates by Percentage²¹

Year	Cohort Headcount	Cumulative Graduation & Continuation Rates							
		Within 1 Year		Within 2 Years		Within 3 Years		Within 4 Years	
		Cont.	Graduate	Cont.	Graduate	Cont.	Graduate	Cont.	Graduate
Fall 2005	6	100.0%	0.0%	83.3%	16.7%	33.3%	33.3%	0.0%	66.7%
Fall 2006	11	54.5%	9.1%	45.5%	18.2%	27.3%	36.4%	18.2%	45.5%
Fall 2007	20	60.0%	0.0%	30.0%	10.0%	10.0%	20.0%	5.0%	25.0%
Fall 2008	14	78.6%	0.0%	57.1%	0.0%	28.6%	21.4%	0.0%	50.0%
Fall 2009	10	100.0%	0.0%	60.0%	0.0%	20.0%	20.0%	0.0%	50.0%
Fall 2010	28	60.7%	3.6%	32.1%	28.6%	17.9%	35.7%	0.0%	53.6%
Fall 2011	19	63.2%	0.0%	47.4%	10.5%	10.5%	47.4%	0.0%	52.6%
Fall 2012	17	47.1%	0.0%	11.8%	17.6%	0.0%	29.4%	0.0%	29.4%
Fall 2013	13	30.8%	0.0%	15.4%	23.1%	0.0%	30.8%	0.0%	30.8%
Fall 2014	19	63.2%	0.0%	36.8%	15.8%	10.5%	36.8%	5.3%	47.4%
Fall 2015	13	84.6%	0.0%	76.9%	15.4%	7.7%	69.2%	0.0%	69.2%
Fall 2016	11	81.8%	0.0%	45.5%	27.3%	0.0%	54.5%	0.0%	63.6%
Fall 2017	12	58.3%	0.0%	25.0%	33.3%	8.3%	50.0%	8.3%	50.0%
Fall 2018	10	90.0%	0.0%	30.0%	30.0%	0.0%	70.0%	0.0%	80.0%
Fall 2019	7	100.0%	0.0%	42.9%	28.6%	0.0%	57.1%		
Fall 2020	10	70.0%	0.0%	20.0%	30.0%				
Fall 2021	4	75.0%	0.0%						
Fall 2022	7								

5.3 Student Support, Satisfaction and Services Graduate

5.3.1 Co-Curricular

The department’s graduate program is relatively small, and classes meet in the evenings. This limits the extent to which graduate students can participate in clubs and other activities during the days.

Many current and past graduate students have attended the Spring networking event we have annually held at the Kellogg House at Cal Poly Pomona. This annual event has provided valuable connections and information to our graduate students.

Although we have no teaching assistant or associate positions, some of our graduate students have worked as graders for large principles classes, and one served as a peer mentor (in AY 2022/23) and did an excellent job.

Graduate students have sometimes worked with faculty on their research, specifically with Professor Lange in preparation of research papers and a his recent textbook on machine learning.

²¹ Source: IRPA data request for Continuation and Graduation Rates

5.3.2 Academic Advising

Graduate students are advised by faculty who teach graduate courses under the direction of the graduate coordinator. In the past two years the graduate coordinator was Prof. Carsten Lange. He is training our new coordinator who will start in Fall 2024, Prof. Shih-Tang Hwu.

The department offers four different scholarships to our students, and one of them intended specifically for graduate students.

5.3.3 Student Satisfaction

The alumni survey data presented in section 3.3.3 included graduate students. Former graduates who have responded to our invitations to attend our Spring networking events have voiced satisfaction with our program, what they learned, and how it prepared them for career advancement. Our program has been historically strong in quantitative economics, and the technical and data analysis skills students learn while earning their MS has been helpful in their careers.

5.4 Stakeholders

Section 3.3 shows survey results show the department has done well in preparing our graduates, both those earning the BS and the MS for their future careers.

6 INCLUSIVE POLYTECHNIC EDUCATION

Elements of the Cal Poly Pomona Inclusive Polytechnic Education are listed below:

- i) *Application of Knowledge*
- ii) *Critical Thinking & Problem Solving*
- iii) *Creativity, Discovery, & Innovation*
- iv) *Diverse & Multi- Disciplinary Perspectives*
- v) *Integration of Technology*
- vi) *Collaborative Learning*
- vii) *Community & Global Engagement*
- viii) *Professional & Career Readiness*

The vision of Cal Poly Pomona is to be the model for an inclusive polytechnic university that inspires creativity and innovation, embraces local and global challenges, and transforms lives. This vision is lived-out through the eight elements of inclusive polytechnic education, as shared in [Cal Poly Pomona's Academic Master Plan](#).

Here, we discuss how departmental and program activities are aligned with these eight elements. We proceed by providing representative examples.

Application of knowledge:

At Cal Poly Pomona, we use multiple modalities of teaching to facilitate student learning of theory, followed by reinforcement of theoretical knowledge through active, hands-on application of principles to address opportunities and challenges of the modern world.

- In the capstone senior seminar course required of all earning their BS, students employ skills and knowledge acquired in previous classes (including prerequisites, always enforced, of Economic Statistics, Intermediate Microeconomics, and Intermediate Macroeconomics) to individually prepare a research paper and publicly present it.
- In the Graduate Research project classes required of all earning their MS, students employ skills and knowledge acquired in their graduate coursework to individually prepare a research paper and publicly present it.
- Students in the Quantitative Option prepare a group paper and presentation using mathematical and statistical tools learned in other classes which applies the theoretical models to real world issues.
- Select students work as research assistants on faculty projects
- Some students participate in a summer study program in Germany which focuses on application of economic theory to European issues and topics.
- Many classes require projects analyzing current data and real world application (e.g., Industry Studies – focusing on real estate, and Econometrics)

Critical thinking and problem solving:

At Cal Poly Pomona, we emphasize the development of critical thinking and problem-solving skills, and integrate active and immersive experiential pedagogies in curricular and co-curricular learning experiences.

- The essence of nearly all economics courses is critical thinking and problem solving as the appropriate use and potential misuse of theoretical models to derive results applicable to real world issues, such as the impact of various government policies under different assumptions and conditions.

- Activity courses associated with Economic Statistics (EC 3322); Econometrics (EC 4444) and Intermediate Microeconomics (EC 4401) explicitly involve students in problem solving, both in groups and individually.

Creativity, discovery, and innovation:

At Cal Poly Pomona, our academic programs connect theory, practice, and research, and are focused on creativity, discovery, and innovation.

- Use of software such as R and Stata to facilitate exploration and discovery by both undergraduate and graduate students.
- Active encouragement of undergraduate participation in research beyond the classroom, such as participation in student sessions at the Western Economic Association Annual Conference.
- Collaborative projects for student assistants in research and preparation of instructional materials such as textbooks.
- Classes, both undergraduate and graduate, which require integration of theory and data with real world economic issues.

Diverse and multidisciplinary perspectives:

At Cal Poly Pomona, we value diversity, diverse perspectives, and inclusivity, all of which are integral to multi-disciplinary and collaborative teaching, learning, discovery, and innovation.

- Integration of required undergraduate coursework beyond that contained in General Education requirements, e.g., in Accounting, Communication and Math.
- Multiple approaches to real world issues from perspectives in different courses (e.g., theoretical examination of policies to mitigate global warming in Microeconomic Theory; case studies in Environmental Economics and empirical analysis of relevant real world data in Econometrics).
- Although females are underrepresented in our programs, the ethnic diversity is similar to the university overall, with Hispanic students the largest category.

Integration of technology:

At Cal Poly Pomona, we use evidence-based approaches to integrate technology in support of excellence in curricular and co-curricular pedagogies.

- Usage of statistical applets, R, Stata, Python, and Geographic Information Systems software directly in Economic Statistics, Econometrics, and Spatial Econometrics and indirectly in the Senior Seminar and applied courses.
- Usage of a variety of publisher-based teaching technology used for online problem sets and projects, e.g., MyLab (Pearson); Sapling (Worth), Alta/Knewton (Wiley); Aplia (Cengage), etc.
- In-depth use of LMS in online teaching and some traditional courses.

Collaborative learning:

At Cal Poly Pomona, we embrace team approaches to foster collaborative teaching, learning, discovery, and innovation.

- Group projects in courses such as Applied Economic Research
- Flipped instruction models in select lecture classes
- Problem solving in groups in some principles and intermediate theory courses.
- Group study in the Economics Department resource room across from the Economics Department office
- Tutoring of Economics students by other economics students as with Peer Mentor and sometimes with Supplemental Instructors and Graders assigned to high-enrollment courses

Community and global engagement:

At Cal Poly Pomona, we are engaged with our community, link our academic programs to local and regional stakeholders, and have an understanding of global perspectives and trends.

- Summer Study Abroad in Germany program created and hosted by a Department faculty member, open to both economics and non-economics students
- Guest speakers in traditional and remote classes (e.g., guest speaker from Chase for Money and Banking and real estate professionals in Industry Studies).
- Presentation by alumni during “Professor for a Day” activity.
- Department participation in events such as “Pumpkin Day,” Fall Preview Day and Spring Open House.
- Information disseminated on Linked in and Instagram (created and updated by a student assistant) and on our website (updated by a Department faculty member).

Professional and career readiness:

At Cal Poly Pomona, our curricular and co-curricular learning experiences optimize students’ professional and career readiness.

- Spring Networking/Engagement event which brings students faculty and alumni together to celebrate students awarded the four department scholarships.
- Guest speakers who provide job market information, real world connections and occasionally employment opportunities.

7 FACULTY

7.1 Overview of Faculty

Figure 13 to Figure 16 provide data over 5 years on the historical Full Time Equivalent-Faculty (FTE-F), Full Time Equivalent-Student (FTE-S), Student to Faculty Ratio (SFR), and Major to Faculty Ratio (MFR). The following definitions are from the Office of Academic Resources. Full Time Equivalent-Faculty is an aggregate measure of faculty workload based on payroll appointment fractions. Student to Faculty Ratio is an aggregate measure of students served based on units in course sections and student level. For FTE-S reporting, graduate student (master or doctoral) is considered full-time with 12 units; all others are considered full-time with 15 units. Student Faculty Ratio is FTE-S divided by FTE-F. Lastly, Major Faculty Ratio is the number of stateside degree-seeking students enrolled at census by the FTE-F for tenure-line faculty in the department.

Please note that the data for the following contains information for both undergraduate and graduate programs in the Department of Economics.

Figure 13 – Full Time Equivalent-Faculty (FTE-F)²²

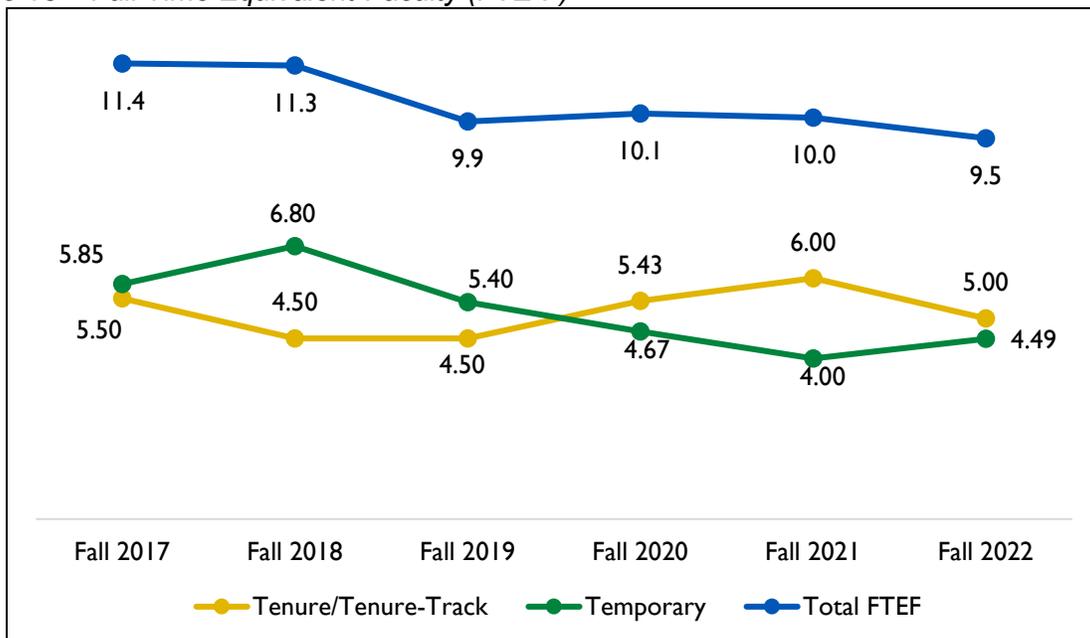


Figure 13 shows a decline in number tenure line faculty mentioned previously. Note the data do not depict the decline in faculty prior to 2017. As mentioned in section 1.3, in 2000 the Department had 13 tenure-line faculty and 6 lectures when the number of majors was less than half the current level. Note that two of the current 5 tenure line faculty are of retirement age, and the department currently has only one Assistant Professor on track to be promoted to Associate Professor in Fall 2025. Fortunately our current Dean appreciates the situation and advocated for a new tenure-line search for Fall 2025.

²² AR "FTE-Faculty with Status Detail Tenure-Track and Temporary Faculty", Falls 2011-2022 Report https://www.cpp.edu/arar/campus-data/fte_faculty_with_status_detail-tenured_tenure-line_and_temporary_faculty_falls_2011_to_2020.pdf

Figure 14 – Full Time Equivalent-Student (FTE-S)²³

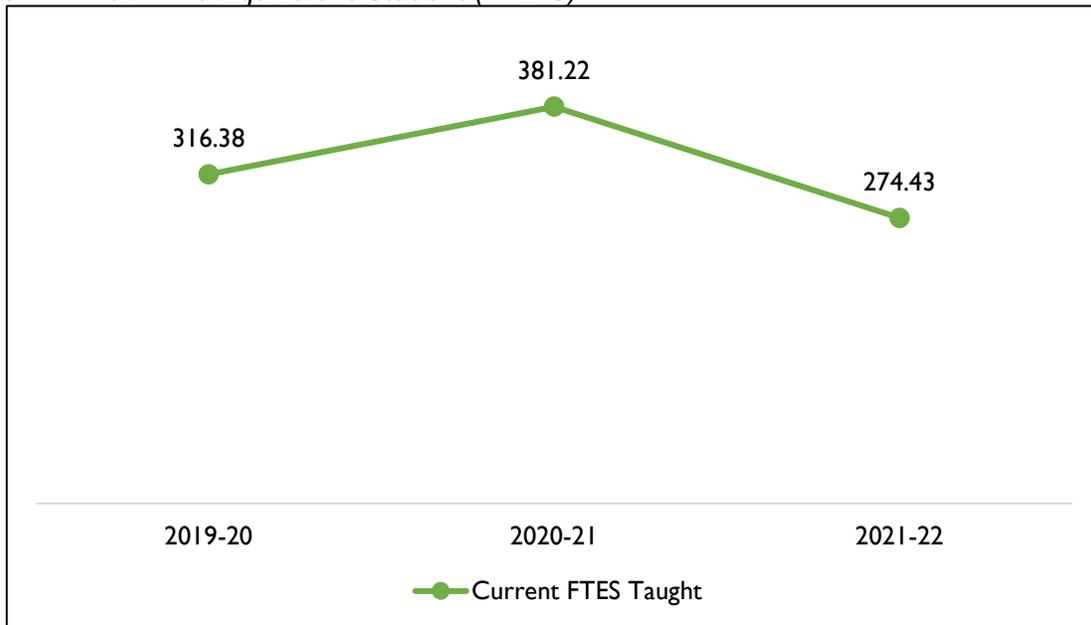
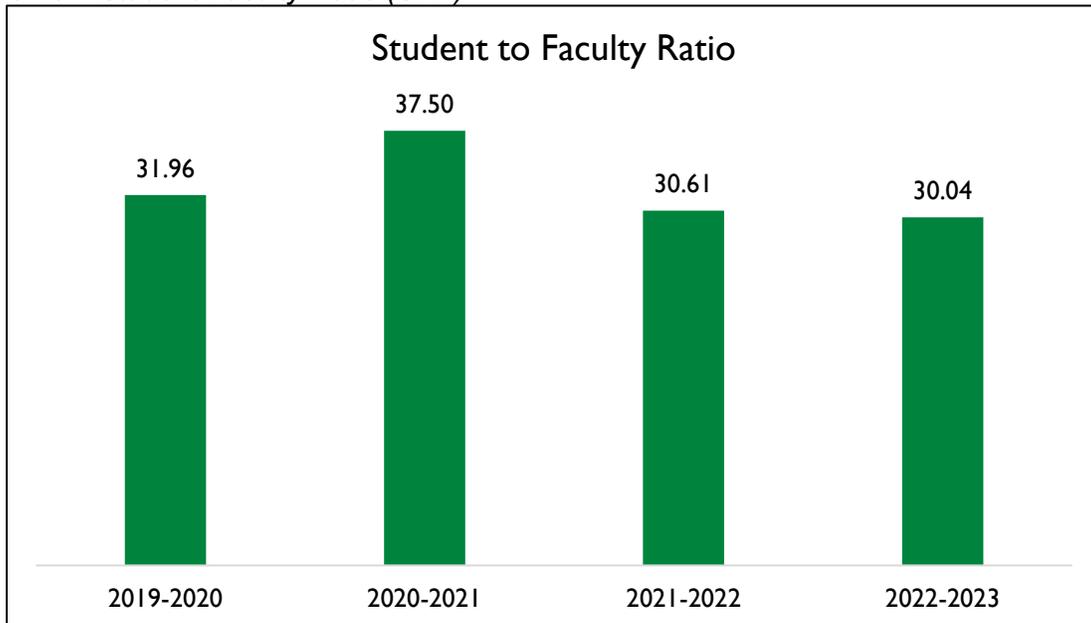


Figure 14 shows the decline in Full-Time equivalent students since AY 2020/21. This reflects the removal of economic principles from GE at Cal Poly Pomona starting in Fall 2021, and the concomitant decline in enrollment in Micro and Macroeconomic principles courses.

Figure 15 shows the SFR levels over all years, with a decline after AY 2020/21 (following the removal of economic principles as a GE course).

Figure 15 – Student Faculty Ratio (SFR)²⁴

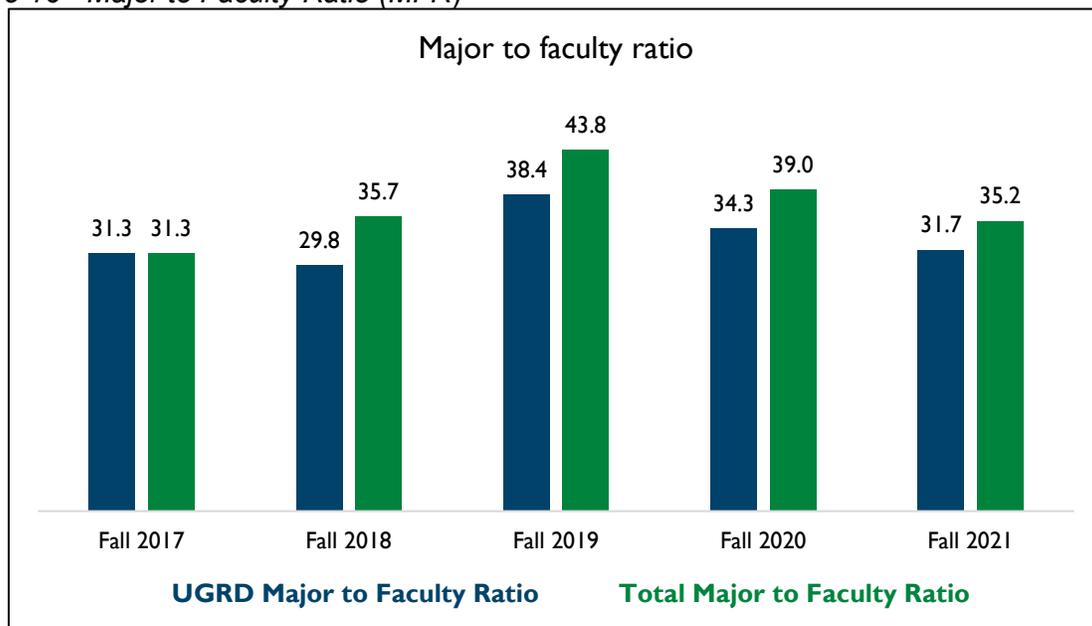


²³ Tableau <https://analytics.cpp.edu/#/site/production/views/FacultyAssignmentsbyDepartment/SFRbyCY?iid=1>

²⁴ Tableau <https://analytics.cpp.edu/#/site/production/views/FacultyAssignmentsbyDepartment/SFRbyCY?iid=1>

Figure 16 shows the Major-To-Faculty ratio remains over the period of 2017 to 2021.

Figure 16 - Major to Faculty Ratio (MFR)²⁵



*Note: Fall 2017 is for undergraduate only since that was the only data reported for that year.

Data for Spring 2024 show 151 were enrolled in the BS program and 21 in the MS program. With 5 full-time faculty this implies MFRs of 30 for just undergraduates, and 34.4 for both graduate and undergraduate students. Note that in Spring 2024 one tenure-line faculty had maternity leave, and another partial paternity leave

The need for additional tenure-line faculty is critical. The number of tenure line faculty has shrunk from thirteen in 1999, to five at present (assuming one colleague in the second year of an unpaid personal leave will not return, as seems certain). In 2005 the department had ten tenure line faculty (not including partially retired former tenure-line colleagues) and 53 undergraduate majors. In 2022 the department had five tenure-line faculty and 166 undergraduate majors (down from 206 in 2020). And this doesn't consider our graduate program.

Part of the shrinkage can be attributed to the removal of Economics Principles from General Education starting in Fall 2021. This naturally led disciplines such as several in Engineering to remove Economic Principles from their required and/or recommended courses.

The impact can be seen in Table 25, with the reduction in Full-Time equivalent students

²⁵ ARAR "Major to Faculty Ratio", Falls 2011-2021 Report <https://www.cpp.edu/arar/campus-data/headcount-ftef-ftes-mfr.shtml>

Table 25 – Full-Time equivalent students (FTES) over time

	Section	FTES
Fall:	Count	Taught
2018	50	292.15
2019	39	287.11
2020	44	391.03
2021	39	289.30
2022	39	265.60
2023	37	274.96

Fortunately, the Department has been able to rely on “part-time” lecturers to substitute for the lack of tenure-line faculty.

Present tenure line faculty consist of:

- Dr. Bruce Brown - joined in 2000 - current Department Chair
- Dr. Carsten Lange - joined in 2002 - current Graduate Coordinator
- Dr. Greg Hunter - joined in 2002
- Dr. Shih-Tang Hwu - joined in 2018 - Associate Professor
- Dr. Hien Nguyen - joined in 2019 - will be up for Associate in 2024/25

The department has six reliable and talented lectures who have taught for Cal Poly over six years and who will all have 3-year contracts starting in 2024/25:

- Dr. Padma Gollapudi
- Dr. Craig McLaren
- Jason Chang
- Edmond Wu
- Mariano Baez
- Pasha Safarzadeh

In Spring 2024, two faculty were on FMLA leave and assumed reduced teaching loads. Thus, the department was in dire need of new colleagues for this term. Fortunately, two former students were able to help us temporarily. One who completed a PhD at UC Irvine after the B.S. in economics at CPP (who currently does cutting edge statistical work for Amazon), was able to teach a graduate econometrics course for us. Another who completed his M.S. in economics at CPP (former mayor of Sierra Madre owner of a successful consulting firm) was able to teach an evening principles section for us.

7.2 Faculty Support

Faculty receive professional development funds from CLASS to support conference attendance and research activities (\$750 for AY 2024/25). In AY2023/24 Prof. Hwu received a Teacher Scholar Award resulting in one course of reassigned time. Prof. Lange applied for and received a SPICE grant to support the use of artificial intelligence (AI) in teaching. Prof. Lange also

received financial support to complete his text: *Practical Machine Learning with R* published in 2024 by Taylor and Francis, a text he will use for a class on this topic he will teach in Fall 2024.

Support from the Center for the Advancement of Faculty Experience (CAFE) has been instrumental in providing technology training and teaching support with issues such as updating syllabi. The following professional development information is a list of workshops provided by CAFE. The image depicts the number of faculty, department chairs, and teaching assistants who attended events.

Year	Event	Count of Event
2018-2019		
2018-2019	5 Week Dash	1
2018-2019	Black Board Wrangling Workshop	1
2018-2019	Course Redesign Institute	1
2018-2019	EDSI - Semester Conversion Bootcamp	1
2018-2019	Every Semester Needs a Plan Workshop	1
2018-2019	Faculty Day	2
2018-2019	Faculty Inclusion Luncheon	1
2018-2019	New Faculty Follow Up	2
2018-2019	New Faculty Orientation	1
2018-2019	New Faculty Welcome Week	1
2018-2019	Steps Create H/OL Courses	1
2019-2020		
2019-2020	ACUE: August	2
2019-2020	CAFE Remote Course Design: July	6
2019-2020	Facilitator - CAFE Remote Course Design: July	1
2019-2020	Improve your Online Course	4
2019-2020	Poly Teach - Nancy Warter-Perez	1
2019-2020	PolyTeach - Main	1
2020-2021		
2020-2021	Introduction to Teaching Online Using QLT June 7 June 27	1
2020-2021	ACUE Micro F - Promoting Active Learning - Francine Mercer	1
2020-2021	ACUE Micro I - Creating Student-Centered Courses - Denisa Chatman Riley	1
2020-2021	ACUE Micro J - Creating Student-Centered Courses - Krishna Sigdel	1
2020-2021	CAFE Inclusive & Equitable Hybrid & Flipped Course Design	4
2020-2021	EDSI - What's in a Grade June 1 - June 30	1
2020-2021	EDSI: What's in a Grade ?	1
2020-2021	Improve Your Online Course July 5-25	1
2020-2021	Intro to Teaching Canvas - 5 of 25	2
2020-2021	Intro to Teaching CANVAS - Bortis Group June 1 - June 15	2
2020-2021	Intro to Teaching CANVAS - Ekaterina Chernobai July 19 - August 2	1
2020-2021	Intro to Teaching CANVAS - Tamayo June 14 - June 25	1
2020-2021	Introduction to Teaching Online Using QLT July 5-25	1
2020-2021	Lecturer Faculty Evaluation	1

2021-2022		
2021-2022	ACUE Inclusive Teaching for Equitable Learning	1
2021-2022	Interactive and Animated Videos	1
2022 - 2023		
2022 - 2023	Peer Coaching	1
2022 - 2023	Summer Institute Thursday Workshop	3
2022 - 2023	Summer Institute Thursday Workshop - H Holmgren	2
2022 - 2023	Summer Institute Thursday Workshop - P Vieira	2
2022 - 2023	Summer Institute: Anti Racist Teaching & Learning	4

Although they are not located in the department and not even officially supervised by the College, the CLASS Student Success Center has been a great help in advising students which has benefited students and been a great help for faculty. Their primary responsibility concerns university and general education requirements, but they have also helped students meet economics department requirements as well. The advisors are knowledgeable, professional, and helpful. Their positive enthusiasm benefits the students in all the departments in CLASS, including economics.

The most important source of support has been our wonderful Administrative Support Coordinator (ASC) Stephanie Gonzalez. She has done an amazing job in simplifying administrative tasks and securing resources for the department and efficiently deploying them.

8 UNIVERSITY SUPPORT AND RESOURCES

8.1 Personnel

The department's one staff member, the Administrative Support Coordinator (ASC), is wonderful and greatly appreciated by faculty and students alike. She does much more than what is in her job description and benefits not only those in the economics department, but in CLASS and the University overall. She seeks out additional tasks and to enhance her knowledge base and volunteers to help others all through campus. The CLASS Dean's Office knows she is the "go-to" person to solve a wide variety of problems, such as helping departments who have lost their ASC and not yet hired a replacement. She volunteers and has a large positive impact on activities such as World Philosophy Day and the Geography Department's Geographic Information Systems (GIS) Day.

For the economics department she has advocated for resources to hire a peer mentor; secure space for the student resource room - and encourage students to intensively use it; revitalized our networking event - bringing in more professionals and alumni, and encouraging students to attend (attendance in Spring 2024 was more than double what it had been before she arrived). The only problem is that as others have learned how wonderful she has been given more and more tasks outside the economics department (e.g. helping other departments with their new students orientations in the summers).

Everyone in the department is more efficient and effective with our ASC. She helps simplify complicated administrative processes such as reimbursement for travel expenses, which had been a time-consuming issue in the past. The positive effect of her considerate, proactive and skilled attention to departmental matters cannot be overstated.

8.2 Facilities and Space

Spaces important for the economics department include classrooms we use for teaching (in particular the lab we use for quantitative courses: room 1-317), faculty offices, the department office and the student resource room across from the department office. Our ASC, Stephanie, has done an excellent job advocating for the retention of the spaces we need, such as the student resource room, for example. In addition, she vigorously encourages students to make full use of this space and everything else the University has to offer.

Support from Information Technology (IT) has been helpful and effective. IT specialists such as Jimmy Koo do an excellent job resolving hardware and software computer problems, and generally addressing the technology needs of faculty in their offices and in the labs (such as 1-317). Our current classrooms are not luxurious by any means, but they are functional and fortunately, we've been able to typically schedule faculty to minimize the travel between back-to-back sections.

8.3 Library

The University Library has been very effective in assisting economics department faculty both with research and teaching. The University Library assigns specific librarians to support specific disciplinary areas. Beginning with the 2022-23 Academic Year, a faculty librarian was assigned to the BS Economics program. Prior to this, the assignment was vacant for a number of years. Subject librarians provide the following services:

- Design and deliver library-related course-integration instruction at the request of teaching faculty;
- Develop online tutorials and guides for specific courses or projects as well as more general online research guides for the disciplinary area;
- Available on a by-appointment basis to meet with individual students or with small groups of students for personalized research consultations in-person, via Zoom or chat, or by phone or email. <https://www.cpp.edu/library/reference-instruction/contact-subject-librarian.shtml>

The Economics Club organized a lunch event that highlighted how the library could help with economic research, and was both enjoyable and very informative. The library makes sure we know he has resources to help us with both research and teaching. In recent years we have not made full use of the workshops to assist students with their research papers. The department will encourage and/or force students to use these library resources more intensively, particularly for the senior seminar and the graduate research project courses.

Research Assistance

Research assistances is available in a variety of ways– in-person, via online chat, by telephone, or via email. Library faculty provide reference service (this includes assistance that is 15 minutes or less) and offer one-on-one research consultations (by appointment consultations that generally run longer than 15 minutes). The chart below outlines the number of reference questions and research consultations conducted in the specific disciplinary area over the last five fiscal years:

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Reference Questions	1	9	20	24	29
Research Consultations	0	3	15	22	13
Total	1	9	20	24	29

Course-Related Instructional Statistics

The chart below outlines the number of course-integrated instructional sessions offered by library faculty at the request of teaching faculty teaching specific credit courses in the academic program. Total number of attendees and contact hours are also provided. These statistics cover sessions offered for specific credit courses over the last five fiscal years:

- AY 2019-20
 - EC 4441

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Number of Course-Integrated Instructional Sessions	0	0	0	1	0
Total Number of Attendees	0	0	0	30	0
Total Number of Instructional Contact Hours	0.0	0.0	0.0	20.0	0.0

Library Workshop Instructional Statistics

The chart below outlines the number of library-sponsored workshops designed and delivered by library faculty. Total number of attendees and contact hours are also provided. These statistics cover the following workshops offered over the last five fiscal years:

- AY 2022-23
- Economics Club Workshop

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Number of Workshops Offered	1	N/A	N/A	N/A	N/A
Total Number of Attendees	3	N/A	N/A	N/A	N/A
Total Number of Instructional Contact Hours	3.0	N/A	N/A	N/A	N/A

Online Research Guides

Library faculty created online research guides for specific courses and disciplines. The full list is available on the library website here: <https://libguides.library.cpp.edu/>

For this subject area, the subject librarian has developed and maintained the following research guides listed below. The chart also includes the number of views by fiscal year which indicates usage.

Online Research Guide Title + Link	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Economics	91	118	148	204	111
Websites – Economics	27	41	77	43	42

Online Tutorials & Modules

Library faculty create online tutorials and modules for specific courses and disciplines. Listed below are the relevant tutorials and modules for this academic program and the number of views which indicates usages.

Online Research Guide Title + Link	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
APA Citation	1	0	0	0	0
Bronco Scholar Accessibility Tutorial	N/A	0	0	0	1
Interlibrary Loan	0	0	0	2	3
EZ Research	N/A	1	1	18	4

Finding Books in OneSearch	0	0	0	2	2
Google Scholar	N/A	0	0	1	0
Finding Masters Theses & Projects	0	0	0	1	0
Finding Bibliographic Information	0	0	4	0	0
MLA Citation	0	1	4	0	0
Research 101, Part 1	7	0	0	1	4
Research 101, Part 2	6	5	10	1	3
Research 101, Part 3	5	6	14	1	1
Research 101, Part 4	5	6	13	1	1
Research 101, Part 5	5	5	6	1	1
Research 101, Part 6	0	2	0	0	0

Library Resources

For this program area, there are 5 electronic resources that support the disciplinary area. These resources include both journals and databases. These resources and the number of searches are indicated in the charts below.

Electronic Resource Titles	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
ABI/Inform	66723	105848	110807	130376	159291
Academic Search Premier	36138	66719	79847	91333	93461
Value Line	219	2086	1808	1240	666
Web of Science	n/a	10804	11893	n/a	n/a
Wharton Research Data Services (WRDS)	n/a	n/a	n/a	n/a	n/a

Graduate Library Data:

Research Assistance

Research assistance is available in a variety of ways— in-person, via online chat, by telephone, or via email. Library faculty provide reference service (this includes assistance that is 15 minutes or less) and offer one-on-one research consultations (by appointment consultations that generally run longer than 15 minutes). The chart below outlines the number of reference questions and research consultations conducted in the specific disciplinary area over the last five fiscal years:

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Reference Questions	5	7	17	21	19
Research Consultations	2	2	14	20	7
Total	5	7	17	21	19

Course-Related Instructional Statistics

The chart below outlines the number of course-integrated instructional sessions offered by library faculty at the request of teaching faculty teaching specific credit courses in the academic program. Total number of attendees and contact hours are also provided. These statistics cover sessions offered for specific credit courses over the last five fiscal years:

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Number of Course-Integrated Instructional Sessions	0	0	0	0	0
Total Number of Attendees	0	0	0	0	0
Total Number of Instructional Contact Hours	0.0	0	0	0	0

Library Workshop Instructional Statistics

The chart below outlines the number of library-sponsored workshops designed and delivered by library faculty. Total number of attendees and contact hours are also provided. These statistics cover the following workshops offered over the last five fiscal years:

	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Number of Course-Integrated Instructional Sessions	0	0	0	0	0
Total Number of Attendees	0	0	0	0	0
Total Number of Instructional Contact Hours	0.0	0	0	0	0

Online Research Guides

Library faculty created online research guides for specific courses and disciplines. The full list is available on the library website here: <https://libguides.library.cpp.edu/>

For this subject area, the subject librarian has developed and maintained the following research guides listed below. The chart also includes the number of views by fiscal year which indicates usage.

Online Research Guide Title + Link	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
Economics	91	118	148	204	111
Websites – Economics	27	41	77	43	42

Online Tutorials & Modules

Library faculty create online tutorials and modules for specific courses and disciplines. Listed below are the relevant tutorials and modules for this academic program and the number of views which indicates usages.

Online Research Guide Title + Link	AY 2022-23	AY 2021-22	AY 2020-21	AY 2019-20	AY 2018-19
APA Citation	0	1	0	0	0
Google Books	0	1	0	0	0
Finding Masters Theses & Projects	0	1	0	0	0

8.4 Other Campus Resources

The [CLASS Student Success Center](#) has been a wonderful addition. They have excellent leadership and advisors who have been extremely helpful in providing all non-major advising; submitting petitions; correcting errors such as errors in articulation.

The [Learning Resource Center](#) (LRC), located in the University Library, provides beneficial tutoring for a wide variety of introductory subjects, including economics. In the past economics students, both graduate and undergraduate, have worked as tutors at the Center.

The International Center in the College of Professional and Global Education, and in particular Lisa Xue, director of the Global Education Institute and Kraig Walkup in International Programs have been very helpful. Our department colleague, Prof. Carsten Lange started an international exchange with a German University 20 years ago and has led it since then. Kraig and Lisa have helped him resolve complications and serve our students. In addition, the International Center has helped our international students resolve administrative and other issues. The International Center has recruited Economics faculty to make presentations and teach visitors from abroad on an as-needed basis.

The [Graduate Resource Center](#) (GRC) offers students online support services; online student advising; financial literacy information, scholarship/financial aid resources; online-tutoring in English, grammar, writing and quantitative analysis; student success workshops (APA Citation, Thesis/Project Formatting, Health/Stress relief); online peer support space; mentoring opportunities, faculty–student collaborative research experiences. Our former graduate coordinator, Carsten Lange served as one of the tutors, providing quantitative assistance for graduate students conducting research. The Center connects graduate students with other helpful university resources such as the international center, financial aid office, general tutoring and the library.

Although the economics department doesn't directly work with the Bronco Advising Center, improvement with the correct processing of student transcripts has been noticeable and is very much appreciated. In the past (e.g., five years ago) courses taken outside of Cal Poly were often incorrectly articulated, and this could cause great problems such as delayed graduation by one or more semesters and/or courses which should not have been taken, mistakenly indicated as required on the student degree progress reports (DPRs). Improvement with the Bronco

Advising Center and expansion of duties of the College's Student Success Center have both greatly benefited students, and faculty in their capacity as major advisors.

8.5 Budget

The most important expense generated by the Department are salaries for faculty. Tenure track faculty salaries are not managed by the department. Lecturer salaries are affected by Department scheduling choices. After the removal of economic principles from general education (GE) in Fall 2021, the Department has spent more than allocated each academic year. This has been the result of high targets for student faculty ratios (SFRs) based on large classes that were formerly offered to satisfy student GE requirements. These high targets implied the Department was allocated much less per student than departments with lower SFR targets. In light of these external changes, the CLASS Dean's office revised downward the Economics SFR targets starting Fall 2024, so hopefully the Department will not appear to have a deficit in the future.

With regard to professional development funds administered through the class Dean's office our current administrative support coordinator (ASC) ensures all faculty know how much they have available to them and the deadlines for spending these funds. In the past two years the department has done an excellent job of spending it's discretionary funds while not going over budget on non-instructional expenses.

As the Department has no research labs or other expensive facilities to maintain, its operating expenses are a small fraction of instructional salaries. For AY 2024/25 projected professional development funds per faculty member are \$750, and operating expenses to be allocated to the department \$3,500. In comparison, the amount projected to be spent on lecturer salaries exceed \$250,000.

The department has participated in efforts to raise funds externally, such as creating and publicizing a "Launch Pad" fundraising site in October 2024 which solicited contributions to provide scholarships for students participating in the student exchange program with Leibniz University in Hanover Germany created by, and run by Carsten Lange for almost 20 years. As previously mentioned in section 3.3.1 regarding co-curricular activities, the department is fortunate to have received sizable contribution to scholarship funds from three former faculty members. These funds support four scholarships awarded to students annually.

In Spring 2024, the department was able to award \$16,000 total to twelve students:

\$9,000 total to five students via the Blumner-Franklin Economics Scholarship Endowment

\$1,800 total to two students via the Blumner-Franklin Economics Scholarship Endowment for Transfer Students

\$3,000 total to three students via the George Galbreath Scholarship Endowment

And \$2,200 total to two graduate students via the Dr. Franklin Ho Endowed Scholarship for Graduate Economics Endowment

9 CONCLUSION

Although the department has shrunk in recent years due primarily to external curricular changes, and so is currently smaller than optimal, it still provides an excellent educational for our students and supports the overall college and university goals.

The most fundamental reason most of our students decide to attend college is to improve their lives. Having better career possibilities is one of the clearest ways to improve one's life. An objective measure of career success is one's earnings. Institutional Research and Analyses (IR&A) within the CSUs division of Academic and Student Affairs collects and analyzes data on Labor Market Outcomes and reports on earnings of CSU graduates by campus, major and year of graduation - matched by Social Security numbers. This compensation data, provided by employers as required by the California Employment Development for the purpose of administering the unemployment insurance program, is more reliable than other measures.

Table 21 shows students who have earned their degree in economics at Cal Poly Pomona earn higher average and median wages than nearly all other majors. Most other majors with high earning graduates have impacted admission, and so have selected the most highly qualified incoming freshman judged by test scores and high school GPAs. Over the entire period covered by these data, the Cal Poly Pomona Department of Economics has not been an "impacted" major, and therefore has been obligated to accept all applicants which meet minimum CPP admission requirements. This suggests that the economics department at Cal Poly Pomona has been providing its students the knowledge, skills and study habits which allow them to find career success; and that this is not the result of selection bias due to more highly qualified admits (as may be the case with impacted majors).

Table 26 - Earnings of CPP graduates by major, 2000-2018, sorted by 10 years after graduation

		Years Since Graduation:			
Medians		2	5	10	15
	Economics	\$53,186	\$64,780	\$88,492	\$116,400
	CLASS	\$40,262	\$53,943	\$71,100	\$89,384
	College of Business	\$54,842	\$68,308	\$85,801	\$97,742
	Hotel/Rest. Mgmt.	\$44,116	\$55,306	\$64,972	\$75,545
	Engineering	\$76,707	\$92,583	\$114,237	\$129,700
Aerospace, Chemical, Civil, Electrical/Electronic(3), Industrial, Manufacturing, Materials, Mechanical(2)					
		Years Since Graduation:			
Means		2	5	10	15
	Economics	\$57,757	\$75,238	\$99,384	\$148,107
	CLASS	\$43,442	\$57,691	\$75,641	\$94,428
	College of Business	\$58,267	\$73,987	\$95,225	\$109,970
	Hotel/Rest. Mgmt.	\$46,049	\$57,713	\$71,473	\$99,201
	Engineering	\$76,805	\$94,082	\$118,847	\$136,239
Aerospace, Chemical, Civil, Electrical/Electronic(3), Industrial, Manufacturing, Materials, Mechanical(2)					

Data Collected by the CSU from CA employers by EDD. Individual earnings matched to degree by social security number. On CSU Labor Market Outcomes Dashboards: <https://www.calstate.edu/data-center/institutional-research-analyses/Pages/data-dashboards.aspx>

Data analyzed by the *Wall Street Journal* and *Payscale.com* corroborate results of CSU data. They show earning of those with economics as their undergraduate major are significantly higher, and grow faster, than for nearly all other majors. Specifically, *Wall Street Journal* data show economics is the 5th highest earning major out of 50 analyzed. These results may be influenced by the relative popularity of economics as a major at elite institutions which have higher overall compensation for their graduates. The institution-specific CSU data are not subject to this confounding factor.

Material success is particularly important for Cal Poly's first generation students. Unfortunately, it is precisely these students who are least likely to know, prior to entering Cal Poly, what economics is, and what it can offer its graduates. For most of our students who attend college primarily to improve their career options, exposure to economics is particularly important and potentially life-changing. It is profoundly unfortunate that GE at CPP from 2021 until 2025 has not encouraged students to take an introductory economics course. The statewide GE revision across all three systems of higher education in California, to be implemented in Fall 2025, may offer the opportunity to return economic principles into GE as a social science option at CPP.

For the most students economics may not be the best major; but for those with aptitude, interests, and abilities consistent with success in economics, exposure to an introductory economics course will help them make an appropriate choice of major, a decision of crucial importance to their success and happiness in life.

While compensation is one of many variables related to successful and impactful careers, it is most readily measured and likely positively correlated with other less quantifiable measures. These data provide support for the notion that the economics department at Cal Poly Pomona has done a relatively good job preparing students for career success.

The department's success in preparing students for their future careers is likely related to its ability to teach technical material in an appropriate manner for those students who complete their degree in economics.

Perhaps a goal more appropriate than increasing graduation rates of all who enter as economics majors, would be to help students choose, or change to, a major appropriate for them. If a student's interests and abilities are not compatible with economics, we should help students realize this early in their educational journey. Similarly, if a student enters Cal Poly Pomona in a different major, but is really better suited to economics, the department and university should try its best to help the student discover this.

Compensation data for the three sources cited above show economics can provide good career opportunities for its graduates. The CSU data verifies this is true for CSU students and specifically has been true for Cal Poly Pomona graduates as well. This reflects positively on the CPP Department of Economics.

Strengths

A relative strength of the CPP economics program has been, and continues to be, its quantitative orientation. Our program requires calculus and at least three progressive statistics courses: Introductory Statistics (STA 1200); Economic Statistics with activity (EC 3322/3322A); and Econometrics (EC 4444/4444A). Quantitative and empirical analysis pervades most other classes as well. Students learn (with no prior knowledge required) software such as R, Stata, and Python; as well as how to intensively use features of Excel and to apply these tools to real world data. A course, Spatial Econometrics, teaches students to use GIS software and to analyze geographically coded data.

Current faculty are both committed to teaching our students, and expanding their knowledge in a way that benefits students. Some examples include

i) Publication of an introductory text in Machine Learning that will be used in a new course offered in Fall:

<https://www.routledge.com/Practical-Machine-Learning-with-R-Tutorials-and-Case-Studies/Lange/p/book/9781032434056>

ii) A statistics website, used in Econometrics and Economic Statistics both at Cal Poly and elsewhere, created by one of our departments lecturers:

<https://www.statssolver.com/>

iii) A lecturer who is principal of a successful consulting firm and served as Mayor of Sierra Madre:

<https://sierraecon.com/>

https://www.cityofsierramadre.com/cityhall/elected_officials/garcia

iv) Lectures who own and run a property management firm, and bring the real world lessons into their classes:

<https://peakmanagement.co/>

Tenure-line faculty bring their current research into their classrooms, and lectures bring real world examples from their business endeavors outside of Cal Poly Pomona.

As previously mentioned, the department is blessed to have an exceptionally dedicated, enthusiastic, proactive, and talented ASC (“department secretary”) who take pride in supporting our student success and creating a nurturing environment (she choose to work at CPP partially because her children would receive reduced tuition - and her son chose economics as a minor to complement his major in History).

The old expression that every cloud has a silver lining applies. Shrinkage of the department has allowed it to be more personal and nurturing for our students. Key individuals have an amplified beneficial impact on the department (e.g. ASC).

Fortunately a new CLASS Dean who started in Fall 2023 appreciates and understands the department in a way that has not been the case in the past. Specifically she advocated to allocate a new tenure line position to begin in Fall 2025, and fully supported the reclassification updating of the CIP (Classification of Instructional Programs) codes for both our BS and MS programs to allow for the appropriate classification of our programs as STEM, which will provide benefits for our students and assist in recruitment, particularly for our graduate program.

Our department Economics Club is being fully revitalized. During the pandemic the clubs activities waned, but the current leaderships is strong and active, has volunteered to assist in orient new arrivals this summer, leadership attended all ASI (Associated Students Incorporated) trainings to qualify for support, and will publicize the club at the CPP Club & Resource Fair during the orientation for incoming students Fall 2024.

Opportunities

The systematization of general education in Fall 2025 promises to return economic principles to general education, and both increase the demand for faculty to teach additional GE courses, but more importantly provide an opportunity to expose our first generation students to economics and to encourage more students to consider majoring or minoring in it.

The reclassification of the economics programs at CPP as STEM will also aid in recruitment; particularly to out graduate program. We have a strong program with an emphasis on quantitative economics as shown in section four of this document.

The current support from the CLASS Dean’s Office and a willingness to advocate for our department and devote resources to it is refreshing and promises to provide the support we need to grow and expand.

Threats

The primary challenge for the department is its current small size and the reliance on individual personnel. The department was recently weakened by the lost of two tenure-line faculty. One accepted a position at Brown University and the other as economist with the state of Ohio (this colleague was formerly our curriculum specialist). Two more tenure-line faculty are of retirement

age. Lecturers have opportunities outside of CPP and may at some point not have sufficient time to continue. And as mentioned previously, our current ASC is truly outstanding in every way. This has been noticed by others at the university she may decide to take advantage of the other opportunities available to her.

In so far as key aspects of our program are connected with individual colleagues, their departure may adversely impact the department significantly going forward. Carsten Lange founded and maintains the German student exchange program, and teaches idiosyncratic courses: Spatial Econometrics and Machine Learning. So his departure would have a particularly adverse impact.

Although the small size of our department is primarily due to a dearth of principles classes for general education, the number of majors has fallen slightly as well. This limits the number of upper division course offerings and results in single sections of required courses offered, and so difficulty for student schedules.

To say an institution, individual or academic department is “at a crossroads” may be an overused expression, but in several ways, the Department of Economics at Cal Poly Pomona is. The department’s past shrinkage provides an opportunity for vigorous growth in the coming years. The promise of increased enrollment in economics principles in response to general education changes in Fall 2025 will likely provide an opportunity to expose a wider group of Cal Poly Pomona students to the discipline. This will likely encourage more of those students for whom economics would be an appropriate “home” to consider it as a major or minor.

The reclassification of our programs as STEM will encourage more applicants, particularly international students. The department faculty, both tenure-track and lectures are majority foreign-born (with three of our current five tenure track faculty having experienced the naturalization process) and this international dimension can be leveraged as a strength. International aspects of economics can be presented from a personal perspective, exchange programs such as the existing German student exchange can be maintained and initiated, and international students can be encouraged to join our department, especially the MS program.

The department is fortunate to have the support of the current CLASS Dean. The department has the opportunity to parlay this administrative support to grow and better serve our students, the College and the University.

10 APPENDICES: Curriculum Sheets and Faculty CVs

Appendix 1: Curriculum Sheets

- BS Economics – Applied Economics ([link](#))
- BS Economics – General Economics ([link](#))
- BS Economics – Quantitative Economics ([link](#))
- MS Economics ([link](#))

Appendix 2: Faculty CVs

Bruce Christian Brown
August, 2024

Department of Economics
California State Polytechnic University
3801 West Temple Ave
Pomona, CA 91768
Phone: 909.869.5074
email: bbrown@cpp.edu

home address:
2338 Silver Tree Rd.
Claremont CA 91711
cell: 909-938-4019

Education:

Degree	Institution	Date	Field
Ph.D.	UCLA	December, 1997	Economics
M.A.	UCLA	June, 1987	Economics
A.B.	U.C. Berkeley	March, 1983	Economics

Passed *The Japanese-Language Proficiency Test, level 4*, December 1999
- Administered in Japan by the Association of International Education

Academic Positions:

Department Chair Economics, California State Polytechnic University, Pomona (2013 - present).
Graduate Coordinator Economics, California State Polytechnic University, Pomona (2012-2013).
Professor, Economics, California State Polytechnic University, Pomona (2010-present).
Associate Professor, Economics, California State Polytechnic University, Pomona (2005-2010).
Assistant Professor, Economics, California State Polytechnic University, Pomona (2000-2005).
Associate Professor, Niigata University Faculty of Economics, Niigata Japan (1997-2000).
Lecturer – Part-Time, California State University, Northridge, Economics Dept., (1990-1997).
Lecturer – Part-Time, USC, School of Policy Planning & Development (1993-1996).
Lecturer – Part-Time, California State University, Long Beach, Economics (1991-1993).
Lecturer – Full-Time, Western Washington University, Economics (1989-1990).

Selected Publications:

Elasticity, Chapter 9 in Principles of Microeconomics, multimedia online textbook edited by Carsten Lange, 2015

An Introduction to Financial Markets and Institutions, 2nd edition (with Maureen Burton and Reynold Nesiba), M.E. Sharpe Publisher, 2010.

Financial Markets, article in Booms and Busts: An Encyclopedia of Economic History from Tulipmania of the 1630s to the Current Global Financial Crisis, M.E. Sharpe Publisher, 2010.

Nasdaq, article in Booms and Busts: An Encyclopedia of Economic History from Tulipmania of the 1630s to the Current Global Financial Crisis, M.E. Sharpe Publisher, 2010.

The Financial System and the Economy, Principles of Money and Banking, 5th edition (with Maureen Burton), M.E. Sharpe Publisher, 2009.

“Simpson’s Paradox, Aggregation, and On-Time Airline Performance,” in *International Business Association Conference Proceedings*, April 2005 pgs. 63-69.

“Lessons from the Japanese Healthcare Experience,” *Journal of Interdisciplinary Studies*, vol. 17, Fall 2004, pgs. 53-66.

“Wages and Employment in the U.S. Apparel Industry,” *Contemporary Economic Policy*, 19(4) Oct. 2001, pgs. 454-464.

“Japanese in the California Labor Market,” *The Journal of Economics - Niigata University*, # 68, March 2000, pgs. 29-50.

“The Changing American Perspective of Japan: Revisionist and Chrysanthemum Club Views as Seen Through the Lens of ‘Japan - A Reinterpretation,’” *The Annual Report of Economics - Niigata University*, # 24, January 2000, pgs. 117-131.

“U.S. Gives Opposite Advice to Japan and Its Neighbors,” under the title “Some Pearls of Wisdom in Economic Advice,” *The Japan Times*, pg. 21, May 17, 1998.

Unskilled Immigration and Native Wages, UCLA Economics Department Ph.D. dissertation, (Edward E. Leamer, chair), December, 1997.

Selected Conference Presentations:

“The Nature and the Origin of the Firm” presented at the 99th Annual Western Economic Association International (WEAI) Conference, Seattle WA, June 2024.

“On Ricardian Equivalence and the Equivalence of Ricardo,” presented at the 98th Annual Western Economic Association International (WEAI) Conference, San Diego CA July 2023.

“Is the Monetary Policy Curve an Effective Replacement for the LM Curve?” 97th Annual Western Economic Association International (WEAI) Conference, Portland OR, July 2022

“Is Ricardian Equivalence Still Relevant?” 96th Annual Western Economic Association International (WEAI) Conference, Honolulu HI July, 2021 – *virtual*

“Teaching Aggregate Demand and Supply” 94th Annual Western Economic Association International (WEAI) Conference, San Francisco, CA. July 1, 2019

“The Money Market – Dynamic versus Static Representations” 93rd Annual Western Economic Association International (WEAI) Conference, Vancouver Canada June 29, 2018.

“Immigrant Impact on Natives by Education” 92nd Annual Western Economic Association International (WEAI) Conference, San Diego CA June 26, 2017.

“Relative Wages and Substitutability of Immigrants and Natives,” 91st Annual Western Economic Association International (WEAI) Conference, Portland OR. July 1, 2016.

“Immigration and Native Adjustment,” 90th Annual WEAI Conference, Honolulu HI, June 28, 2015.

“Airline Ticket Prices and Flight Characteristics: Lowest Price Roundtrip Flights from Los Angeles to New York,” June, 2014, 89th Annual Western Economic Association International (WEAI) Conference, Denver CO.

“Contrasting Notions of Labor Substitutability” June, 2012, 87th Annual Western Economic Association International (WEAI) Conference, San Francisco CA.

“Is Credit Rationing a Market Imperfection?” July, 2011, 86th Annual Western Economic Association International (WEAI) Conference, San Diego CA.

“Engaging a Diverse Set of Students in Healthcare Economics” in a poster session “Active Learning Strategies,” Jan., 2011, 123rd Annual American Economic Association (AEA) Conference, Denver, CO.

Awards/Grants:

Faculty Center for Professional Development Mini-Grant; Supported research assistance in preparation of paper presented at WEAI Conference June 2017, “Relative Wages and Substitutability of Immigrants and Natives” (2016).

Faculty Center for Professional Development Grant for research assistance in preparation of: The Financial System and the Economy (2007).

Designing Online Learning-Centered Environments (DOLCE) program grant (with Professors Lange and Hunter) for creation of online Principles of Microeconomics course (2006).

Faculty Center for Professional Development Grant to participate in the Integrated Public Use Microdata Sample (IPUMS) Winter Workshop in Minneapolis MN, offered by the University of Minnesota, Minnesota Population Center (2005)

Inter-University Consortium for Social and Political Research (ICPSR) grant to participate in a workshop: “Census 2000: Data Structures and GIS Applications,” in Ann Arbor Michigan (2004).

UCLA Pharmaceutical Economics Seminar Research Grant (1993)

Sloan Fellowship for International Economic Research, UCLA (1989 & 1990)

External Reviewer:

(December 2020) External Reviewer (with Prof. N. Edward Coulson, UCI) for Cal State University Los Angeles, Economics Department Self Study.

(January 2019) External Reviewer (with Prof. Kevin Henrickson, Gonzaga University) for the University of the Pacific, Economics Department Self Study.

(May 2017) External Reviewer (with Prof. Dipankar Purkayastha, of Cal State Fullerton) for Cal State University Northridge, Economics Department Self Study.

(September 2014) External reviewer for Scripps College Committee on Appointments, Promotions and Tenure (APT) for possible promotion to Full Professor of Dr. Roberto Pedace.

(February 2014) External Reviewer (with Prof. Gary Hansen, UCLA) for Cal State Long Beach Economics Department Self Study.

Association Memberships:

American Economic Association (AEA)

Western Economic Association International (WEAI)

International Economics and Finance Society (IEFS)

Gregrey W. Hunter

Current Position:

Professor Cal Poly, Pomona
Department of Economics, 1 - 337
3801 W. Temple
Pomona, CA 91678
email: gwhunter@cpp.edu
phone: (909) 869-4888

Education:

- J.D.** Chapman University, Orange, Law, 2023.
- Ph.D.** University of California, Santa Barbara, Economics, 2001.
- M.A.** University of California, Santa Barbara, Economics, 1996.
- B.A.** California State University, Fullerton, Economics, 1995.

Fields: **Finance, Resource and Environmental Economics, Econometrics, Law and Economics**

Academic Positions:

- Professor of Economics:** Cal Poly Pomona (September 2011 – current)
- Economics Department Chair (Interim):** AY 2018-19.
- Director:** Cal Poly Empire Research Project (September 2006 – 2009) – leading a collaborative effort to stimulate applied research about Inland Valley communities among faculty from several colleges.
- Associate Professor:** Cal Poly Pomona (September 2006 – August 2011)
- Assistant Professor:** Cal Poly Pomona (September 2002 – August 2006)
- Assistant Professor:** University of Tilburg (January 2001 – July 2002).

Grants/Awards:

Fowler School of Law merit scholarship 2018-19/2019-20/2020-21/2021-22.
NWO/Novem – Netherlands Government project on the stimulation of adoption of energy efficient technologies. Learning & climate change (DOE).
Health effects of urban air pollution, Environmental & corporate performance (Packard Foundation).

Peer-Reviewed Published Papers:

“**Virtual Money Illusion and the Fundamental Value of Non-Fiat Anonymous Digital Payment Methods,**” *International Advances in Economic Research*”, with Craig Kerr (2019) Springer; International Atlantic Economic Society, vol. 25(2), pages 151-164, May.

“**Efficient public goods provision with incomplete markets.**” *Public Choice*, 151(3/4), 445–464. Hunter, G. W. (2012).

“**Adoption Criteria, Diffusion, and Firm Size,**” *Improving Energy Efficiency through Technology: Trends, Investment Behaviour and Policy Design*, Edward Elgar, Cheltenham, (2011).

“Noah’s Non-concavity: On the existence of non-trivial interior solutions to problem of cost-effective conservation planning” NATURAL RESOURCE MODELING
Volume 22, Number 1, (Spring 2009).

“Anatomy of the 2008 financial crisis: an economic analysis postmortem,” Journal of Financial Transformation, Capco Institute, vol. 27, pages 45-48. Hunter, Greg, (2009).

“Incomplete Markets and Hyperbolic Discounting” The Journal of Risk and Insurance
Vol. 70, No. 1 (Mar., 2003), pp. 97-109

Selected Other Works:

“The Judicial Review Puzzle: Evidence from the Federal Common Law Era” (July 2022), mimeo, Chapman Fowler School of Law.

“January 6, 2021/January 30, 1933” (May 2021) Holocaust and the Law Seminar,
Fowler School of Law, mimeo, Cal Poly, Pomona.

“Measuring the role of elicitation bias in the divergence between WTP and WTA using the Blackwell information index Part 1: The Theory” with Matt Rossu (2005), mimeo, Cal Poly, Pomona.

“A Contingent Claims Approach to Assessing the Impact of Regulatory Flexibility of Firm Value: Refining the Porter Hypothesis” (2002), mimeo, Tilburg University.

“Endogenous Learning and Option Models of Investment” (2001), mimeo, Tilburg University. *Working paper*. Presented at AERE meetings, Monterey California (June 2002).

“Emission Permits and the Marginal Cost of Abatement: An Options Perspective” (2000), mimeo, UC Santa Barbara. Presented at EAERE 2001 Southampton, England (June 2001). *Working paper*.

“Hyperbolic Discounting and Valuing Public Goods in Incomplete Markets” (2003). Presented at the California Environmental and Resource Workshop (May 2000).

“Options in Incomplete Markets: The Problem of Environmental Policy Timing” (1998), mimeo, UC Santa Barbara, presented at the Western Economics Association International Conference, June 1998.

Assessment Experience:

Designing Online Learning-Centered Environment (DOLCE) Program (Summer 2006): Designed content and assessment plan for a new hybrid course offering in conjunction with a team of faculty from the Economics Department and Cal Poly Pomona’s I&IT group.

Co-chair CLASS Budget Planning and Advisory Committee (AY 05-06): Contributed to program assessment design for the President’s Prioritization and Budget Recovery Program.

Member Economics Department Graduate Committee (September 2002 – 2013): Contributed to the graduate program assessment design.

Member Cal Poly Early Career Faculty Learning Community (AY 05-06): Conducted research into curriculum design and assessed the impact of the learning outcomes of students.

Participant American Economics Association Teaching Innovations Program:

Attended T.I.P. conference in Chapel Hill, NC and participated in an on-line class through University of Iowa extension. Both activities dealt with curriculum design and formative and summative assessment.

Service Learning:

The Economics of Community Action: A class designed and taught for the Economics Department in AY 04-05 and AY 05-06. Community Partners – Rowland Heights Community Coordinating Council (AY 04-05) and the Norwalk-La Mirada School District (AY 05-06).

CSU Community Based Teaching and Research Conference: (March 2006) – Presentation on my course design for the economics of community action.

Monograph on Teaching Political Engagement: Contributed a chapter titled, “The Economics of Community Action: Applying Cost-Benefit Analysis to Local Public Policy”.

Mentorship and Student Advising:

Club Advisor to Econ Club: (AY 03-09) Met, advised, and mentored students in the club and helped to organize club activities.

CLASS disqualification ad hoc petition committee: (AY 03-04 and AY 04-05) Evaluated petitions to reinstate academically disqualified undergraduate students and conferred with other committee members on advice to help at-risk students.

The Nuts and Bolts of Advising: Awarded a certificate of completion by advising staff in undergraduate advising.

Graduate Advisor: (2002 to 2013) Advised and mentored graduate students and undergraduate students aspiring to attend graduate school.

Shih-Tang Hwu

CONTACT INFORMATION Building 1, Room 335, 3801 W Temple Ave,
Pomona, CA 91768 shwu@cpp.edu

PROFESSIONAL APPOINTMENTS **California State Polytechnic University, Pomona**
Associate Professor (with tenure) 2022-Present
Assistant Professor 2018-2022

Center for Customer Insights and Digital Marketing

Scholar of Econometrics and Market Forecasting 2022-Present

EDUCATION **University of Washington**, Seattle, WA
Ph.D. in Economics 2018
M.A. in Economics 2014
National Tsing Hua University, Hsinchu, Taiwan
M.A. in Economics 2010
National Taipei University, Taipei, Taiwan
B.B.A. in Statistics 2008

RESEARCH INTERESTS Econometrics, Time Series Analysis, Applied Macroeconomics

- PUBLICATIONS
1. “Noncompliance with the Estate Tax in Taiwan,” (in Chinese), with Shih-Ying Wu, *Taiwan Economics Review*, 40, 389-420, 2012.
 2. “Estimating Trend Inflation Based on Unobserved Components Models: Is It Correlated with the Inflation Gap?” with Chang-Jin Kim, *Journal of Money, Credit and Banking*, 51, 2305-2319, 2019.
 3. “An N-State Endogenous Markov-Switching Model with Applications in Macroeconomics and Finance,” with Chang-Jin Kim and Jeremy Piger, *Macroeconomics Dynamics*, 25, 1937-1965, 2021 (Lead Article).
 4. “Estimation and Efficiency Evaluation of Stochastic Frontier Models with Interval Dependent Variables,” with Tsu-Tan Fu and Wen-Jen Tsay, *Journal of Productivity Analysis*, 56, 33-44, 2021.

- WORKING PAPERS
1. “Markov-Switching Models with Unknown Error Distributions: Identification and Inference within the Bayesian Framework,” with Chang-Jin Kim, 2021. (R&R Studies in Nonlinear Dynamics and Econometrics)
 2. “Estimating the Elasticity of Intertemporal Substitution when Instruments are Weak: Identification Through Time-Varying Volatility,” 2020. (Submitted)

WORK IN
PROGRESS

1. “Determinants of Inefficiency in Stochastic Frontier Models with Interval Dependent Variable,” 2021.
2. “Stochastic Frontier Models with Binary Endogenous Variables,” with Wen-Jen Tsay, 2021.
3. “N-State Endogenous Markov-Switching Models with Time-Varying Transition Probabilities,” with Chang-Jin Kim, 2021.

SEMINARS AND
CONFERENCE
PRESENTATIONS

96th Annual Conference, WEAI (Virtual),	2021
2019 North American Meeting of the Econometric Society (Seattle),	2019
26th Symposium of the SNDE (Tokyo),	2018
Taiwan Economics Research (Taipei),	2017
3rd Seattle-Vancouver Econometrics Conference (Vancouver),	2016
24th Symposium of the SNDE (Tuscaloosa),	2016
MTI brownbag (Seattle),	2016
Applied Economics Conference (Seattle),	2015
87th Annual Conference, WEAI (Seattle),	2013

AWARDS AND
FELLOWSHIPS

Teacher-Scholar Award, California State Polytechnic University, Pomona, 2021.
Research, Scholarship, and Creative Activity Award, California State Polytechnic University, Pomona, 2020.
Grover and Creta Ensley Fellowship in Economic Policy, University of Washington, Seattle, 2016.

TEACHING AND
RESEARCH
EXPERIENCE

Instructor (California State Polytechnic University, Pomona)

Econometrics (Undergraduate), Economic Forecasting (Undergraduate), Game Theory (Undergraduate), Quantitative Preparation (Graduate), Econometrics I (Graduate), Econometrics II (Graduate), Graduate Public Finance (Graduate)

Instructor (University of Washington)

Introduction to Microeconomics (Undergraduate), Econometrics (Undergraduate)

Teaching Assistant (University of Washington)

Econometrics II (Ph.D.), Econometrics III (Ph.D.), Introduction to Microeconomics (Undergraduate), Introduction to Macroeconomics (Undergraduate)

Research Assistant

Research Assistance for Prof. Wen-Jen Tsay 2011-2012
Institute of Economics, Academia Sinica

PROFESSIONAL
ACTIVITIES

Referee for *Journal of Econometrics*, *Journal of Applied Econometrics*, *Journal of Business and Economics Statistics*, *Econometric Reviews*, *Econometrics*, *Studies in Nonlinear Dynamics and Econometrics*.

OTHER
INFORMATION

Languages: English (Fluent), Mandarin (Native)
Computer Skills: Stata, R, Matlab, GAUSS

Hien Nguyen

Department of Economics, Bldg 1-330
Cal Poly Pomona
Pomona, CA 91768

Phone: (310) 906-8704
Email: hienn@cpp.edu

EMPLOYMENT

Assistant Professor, California State Polytechnic University, Pomona 2019-Present

EDUCATION

Ph.D. in Economics, University of California, Riverside 2019
M.A. in Economics, California State University, Fullerton 2013
B.A. in Economics and Business, Foreign Trade University, Hanoi, Vietnam 2010

RESEARCH INTERESTS

Macroeconomics, Financial Economics, Applied Econometrics

PUBLICATIONS

1. "Firm Equity Risk, Bank Lending Standards, and the Macroeconomy" (Cogent Economics and Finance, 2022)
2. "Does the Dodd-Frank Act Stress Test Improve Bank Equity Risk and Liquidity Risk" (Journal of Business, 2022)

WORKING PAPERS

1. "Regional Effects of Homebuilder Sentiment" with Nazneen Ahmad (Revise and Resubmit at Journal of Housing Research)
2. "Inflation Expectation and the Predictability of Yield Curve for Real Economic Activity" with Mingyuan Jia
3. "Predicting the Default Risk of Small Business Loans Using Financial Information"

WORK IN PROGRESS

"Monetary Policy and Housing Affordability" with Nazneen Admad

TEACHING EXPERIENCES

Principles of Macroeconomics
Intermediate Macroeconomics
Money and Banking
Macroeconomic Analysis (Master's Level)
International Finance (Master's and Undergraduate Level)

PROFESSIONAL DEVELOPMENT TRAINING

Active Learning by ACUE	2023
Inclusive Teaching for Equitable Learning by ACUE	2022
Designing Student Centered Courses by ACUE	2021
CAFE's Equitable & Inclusive Hybrid & Flipped Course Design	2021
Introduction to Teaching with Canvas	2021
Learning Through Discovery Institute	2021
Active Learning Microcredential by ACUE	2021
Independent Improving Your Online Course by Quality Matters	2020

SEMINAR AND CONFERENCE PRESENTATIONS

Southern Economic Association	2023
International Association of Applied Econometrics	2022
Southern Economic Association	2021
Western Economic Association International	2019, 2020
Midwest Macroeconomics Meetings	2019

UNIVERSITY/ COLLEGE SERVICES

Learning and Assessment Committee	2022-2023
Search Committee Member for AVP of Central Planning	2022-2023
Reviewer for President's Scholarship	2023
Application Reviewer for Kellogg Honors College	2023
Search Committee Member for Vice President of Students Affairs	2021
Department ASC Search Committee	2021
Inclusive Excellence Committee	2021-2022
Curriculum Committee	2020-2021
Student Success Committee	2019-2020
New Faculty Success Program Affinity	2019-2020

GRUATE STUDENT ADVISING

Xiang Li (Committee Member)	2020
Amber Wyatt (Committee Member)	2020
Kevin Rios (Committee Member)	2020
Kornchal Suwanprateep (Committee Member)	2020
Emy Ure (Committee Member)	2020

SKILLS

Software: R, Python, Matlab, Stata, Eviews, L^AT_EX, MS Office

REFERENCES

Bruce Brown

Professor of Economics,
Chair

Cal Poly Pomona

Tel: +1 (909) 869-5074

Email: bbrown@cpp.edu

Marcelle Chauvet

Professor of Economics

University of California,
Riverside

Tel: +1 (951) 827-1587

Email: chauvet@ucr.edu

Aman Ullah

Distinguished Professor of
Economics

University of California,
Riverside

Tel: +1 (951) 827-1591

Email: aman.ullah@ucr.edu

CV Carsten Lange

Books

Learn Machine Learning. Applied Machine Learning for Economics and Business with R, Chapman and Hall, New York 2024 , (forthcoming).

Principle of Micrconomics with Integrated Multimedia Support, Pomona 2018 , with: Baez, M., Basse, T., Bojanic, A., et. al., published online as open textbook.

Neuronale Netze in der wirtschaftswissenschaftlichen Prognose und Modellgenerierung. Eine theoretische und empirische Betrachtung mit Programmierbeispielen, Springer, Berlin, Heidelberg, New York 2004 .

Monetäre Aspekte der europäischen Integration, Duncker & Humblot, Berlin 1998 , with: Armin Rohde and Horst M. Westphal.

Seigniorage - Eine theoretische und empirische Analyse des staatlichen Geldschöpfungsgewinnes, Duncker & Humblot, Berlin 1995 .

Articles

Applying Machine Learning and AI Explanations to Analyze Vaccine Hesitancy (preprint), arXiv and medRxiv 1/2022, with: Lange, Jian, Environmental Systems Research Institute (ESRI), link: <https://doi.org/10.48550/arXiv.2201.05070>.

A Happy Collaboration Between ArcGIS and R, ArcUser Magazine 9/2021, Vol 24, No. 1, with: Fraczek, Witold and Lange, Jian ESRI, Redlands, CA, link: <https://esriurl.com/ArcUserHappyCol>.

Alternative Models for Salary Determination of MLB Pitchers (manuscript), California State Polytechnic University, Pomona 6/2021, with: Kerr, Craig, California State Polytechnic University, Pomona, Shunto Kobayashi, California Institute of Technology, link: <https://www.cpp.edu/~clange/MLBPitchersKerrLange.pdf>.

Electronic Property Trends of Single-Component Organic Molecular Crystals Containing C, N, O, and H, Computational Materials Science 5/2021, Vol 197, with: Schatschneider, Bohdan, et al., link: <https://dx.doi.org/10.1016/j.commatsci.2021.110510>.

California State Polytechnic University, Pomona, Admission and Enrollment Analysis

Report,, President's Office, California State Polytechnic University, Pomona, 9/2017.

Interest Rate Convergence, Sovereign Credit Risk and the European Debt Crisis: A Survey, The Journal of Risk Finance 8/2017, with: Mario Gruppe et al., Nordeutsche Landesbank Research Department.

Socioeconomic Impact Analysis for the School of Arts and Enterprise, Pomona 7/2017.

Data Champion Project 2017: Admission and Enrollment Analysis 2017 for The College of Letters, Arts & Social Science, California State Polytechnic University, Pomona 11/2017.

Economic Report Part 1 for the City of Industry, 2017, with: Sandra Emerson, California State Polytechnic University, Pomona, link: <https://www.cityofindustry.org/home/showdocument?id=890>.

Economic Report Part 2 for the City of Industry, 2012, with: Sandra Emerson, California State Polytechnic University, Pomona.

Presentations

Paper Presentation at useR! 2022 The R User Conference: *A Better Way to Teach Histograms, Using the TeachHist package,* Virtual 4/2022, link: <https://www.youtube.com/watch?v=DB5isjgmV5c>.

Paper Presentation at American Association of Geographers Annual Meeting: *Apply GIS and Machine Learning to Examine the Interplay of Factors Affecting COVID-19 Vaccine Rates,* Virtual 3/2022, with: Fraczek, Witold, ESRI, Redlands, Lange, Jian, ESRI, Redlands.

Invited Talks: Senior Seminar, Department of Economics, Cal Poly Pomona (Feb. 5th and 7th, 2022): *Machine Learning,* Virtual 2/2022.

Invited Talk: Office of Graduate Studies, Cal Poly, Pomona: *From Start to Finish in 60 Minutes with the Statistics Software R,* Virtual 9/2021, link: <https://www.youtube.com/watch?v=HU01tASO69A>.

Paper Presentation at Western Economic International Association (WEAI) Conference: *Predicting MLB Pitcher Salaries with OLS and Machine Learning,* Virtual 6/2021, with: Craig Kerr, California State Polytechnic University, Shunto Kobayashi, California Institute of Technology.

Paper Presentation at American Association of Geographers Annual Meeting: *Apply GIS and Machine Learning to Predict Urban Growth, Annual Meeting,* Virtual 4/2021, with: Fraczek, Witold, ESRI, Redlands, Lange, Jian, ESRI, Redlands, link: <https://youtu.be/4ngWEcuoKSA>.

Invited Talk: Office of Graduate Studies, Cal Poly, Pomona: *R for Newbies Part 2 - Data Analysis and Reporting*, Virtual 3/2021, link: <https://www.youtube.com/watch?v=uBbL7m6TloE>.

Paper Presentation at Geodesign Summit 2021 Conference: *Predicting Urban Growth Pattern Using GIS and Machine Learning Algorithms*, Virtual 2/2021, with: Fraczek, Witold, ESRI, Redlands, Lange, Jian, ESRI, Redlands, link: <https://youtu.be/4ngWEcuoKSA>.

Invited Talk: Dean's Invited Lecture Series for Spring 2021: *Predicting Urban Growth Pattern Using GIS and Machine Learning Algorithms*, Virtual 2/2021, with: Fraczek, Witold, ESRI, Redlands, Lange, Jian, ESRI, Redlands.

Invited Talk: Office of Graduate Studie Cal Poly, Pomona: *R Tutorial for Newbies (Part 1: Introduction, Installation, and Analysis)*, Virtual 11/2020, link: https://www.youtube.com/watch?v=ROWT_tEoVQA.

Invited Talk: Customer Insights Lab, Cal Poly, Pomona: *Machine Learning with R*, Virtual 3/2020.

Paper Presentation at Polytech Conference 2020: *Detailed Automated Assignments for Flipped Classes*, California State Polytechnic University, Pomona 3/2020.

Invited Talk: Interdisciplinary Thematic Scholarly Community: Big Data and Machine Learning: *Integrating Machine Learning with GIS for Urban Growth Prediction*, California State Polytechnic University, Pomona 2/2020, with: Fraczek, Witold, ESRI, Redlands CA.

NETA (National Economics Teaching Association), 2018 Economics Teaching Conference: *A Textbook Centered Approach to Deliver Online Courses*, Phoenix, AZ 11/2018.

Dean's Invited Lecture Series for Fall 2018: *Machine Learning for the Social Sciences*, California State Polytechnic University, Pomona 11/2018.

Invited Report Presentation: President's Office: *Admission and Enrollment Analysis Report*, California State Polytechnic University, Pomona 2017.

Interdisciplinary Thematic Scholarly Community: Big Data: *Recognizing Patterns in Big Data using Neural Networks*, California State Polytechnic University, Pomona 10/2017.

Invited Presentation: Industry Manufacturers Council Executive Meeting: *Economic Report for the City of Industry*, Pomona, CA 9/2017, with: Sandra Emerson, California State University, Pomona.

Poster Presentation: PolyTech 2017,: *Multimedia Integrated Textbook*, California State

Polytechnic University, Pomona 4/2017.

In the News

Supply chain's 'perfect storm' causes campus, global shortages (interview), by Janean Sorrell and Elizabeth Casillas: *The Poly Post, Cal Poly, Pomona* 10/26/2021, link: <https://thepolypost.com/news/2021/10/26/supply-chains-perfect-storm-causes-campus-global-shortages/>.

New Study Examines How Interplay of Factors Affect COVID-19 Vaccine Rates, by Cynthia Peters: *PolyCentric, Cal Poly Pomona* 10/08/2021, link: <https://polycentric.cpp.edu/2020/05/econ-professor-creates-covid-19-database/>.

CPP surfing hangs ten as summer comes to an end (interview), by Jasmin Smith: *The Poly Post, Cal Poly, Pomona* 8/24/2021, link: <https://thepolypost.com/sports/2021/08/24/cpp-surfing-hangs-ten-as-summer-comes-to-an-end/>.

CPP students and faculty continue research amid pandemic, by Allen Valdez and Jonathan Frias: *The Poly Post, Cal Poly, Pomona* 2/22/2021, link: <https://thepolypost.com/news/2021/02/22/cpp-students-and-faculty-continue-research-amid-pandemic/>.

Cal Poly Featured Experts: *Cal Poly Pomona Web Site, 2/2021*, link: <https://experts.cpp.edu/member/carsten-lange/>.

L.A. County aims to open stores, malls, and restaurants by July 4 (interview), by Ryan Carster: *Los Angeles Daily News* 05/19/2020, link: <https://www.dailynews.com/2020/05/19/industry-l-a-county-leaders-goal-july-4-safe-opening-for-businesses/>.

Coronavirus deaths, uncertainty persist as L.A. County wades tentatively toward 'new normal', by Ryan Carster: *Los Angeles Daily News* 05/10/2020, link: <https://www.dailynews.com/2020/05/10/coronavirus-deaths-uncertainty-persist-as-l-a-county-wades-tentatively-toward-new-normal/>.

Econ Professor Creates COVID-19 Database, by Cynthia Peters: *PolyCentric, Cal Poly Pomona* 05/14/2020, link: <https://polycentric.cpp.edu/2020/05/econ-professor-creates-covid-19-database/>.

Whoa: City of Industry's 3,000 businesses generate more sales than entire countries, by Jason Henry: *San Gabriel Valley Tribune* 9/17/2017, link: <https://www.sgvtribune.com/2017/09/17/whoa-city-of-industrys-3000-businesses-generate->

more-sales-than-entire-countries/.