

# California State University Chico

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## Empowering Students and Universities to Make Informed Major Selection Choices

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### Abstract

Upon selecting a college major, some students may lack access to resources that show relevant job opportunities for their particular majors or areas of study. Additionally, research finds that students across majors are likely to overestimate salaries, but underestimate the probability of being employed (Baker et al., 2018). The purpose of this report is to assist students and universities with understanding how academic majors align to the current job market in California. Using institutional and census data, we seek to answer the following questions: 1) what majors are most utilized at Chico State, 2) which occupations are in-demand in California, and 3) how do majors at Chico State align with job opportunities in California. Please note that this report does not draw any subjective conclusions about the value or importance of a given major and simply seeks to accurately assess the amount and type of opportunities available to graduating students.

### Methodology

Institutional data from Chico State is used to assess the number of students enrolled in various majors at the university. Major classifications match those as outlined by the CSU Chancellor's Office. Major utilization is measured by the number of enrolled students in a given major as of Fall 2021. Utilization is further broken into the following categories: 1) high utilization – 200 or more students enrolled in a major, 2) moderate utilization – 50 to 199 students enrolled in a major, and 3) low utilization – 49 or fewer students enrolled.

This student data is linked to nationally standardized Classifications of Instructional Programs (CIP) as defined by the US Department of Education. CIP codes are then used to connect fields of study to corresponding Standard Occupational System codes

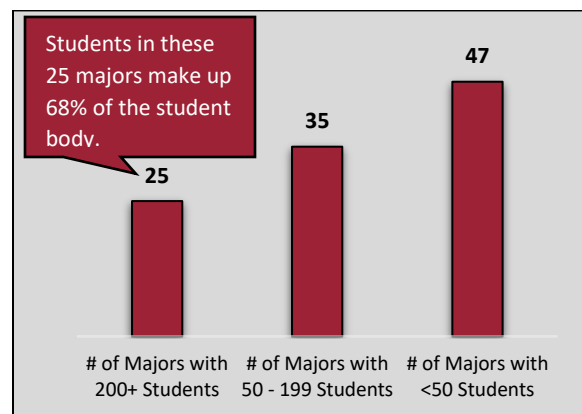
(SOC) in order to determine which majors are related to particular occupations. The Standard Occupational Classification system classifies occupations into categories to allow for comparison across sets of data.

Sources for occupational data include the U.S. Bureau of Labor Statistics May 2021 Occupational Employment and Wage Statistics (OEWS) Survey, as well as the Bureau of Labor Statistics 2020 to 2030 Employment Projections. We evaluate job opportunities based on three criteria: 1) prevalence of a given occupation in California as of 2021, 2) median annual wage for a given occupation in California as of 2021, and 3) projected number of job openings for that occupation in California by 2030. Only professions with related degree programs at Chico State are included in this analysis.

### Results

#### Major Utilization

Figure 1. Fall 2021 Term Major Utilization



Excludes 701 undeclared students.

[Data source: CSU Chico Enrollment Dashboard](#)

When examining Chico State Fall 2021 term data, 25 majors have 200 or more enrolled students. For the purposes of this report, these majors are classified as high utilization majors. Students in these majors make up 68% of the Fall 2021 student body.

**Figure 2. High Utilization Majors**

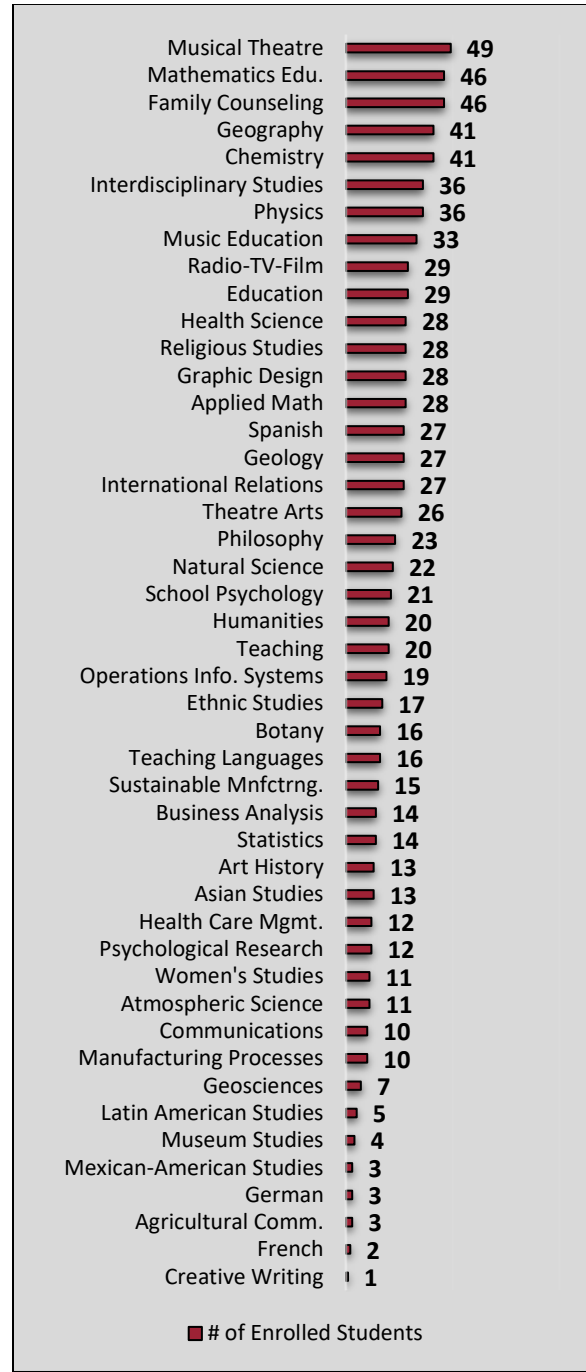


Excludes 701 undeclared students.

[Data source: CSU Chico Enrollment Dashboard](#)

In contrast, 47 majors have fewer than 50 enrolled students and are classified as low utilization majors (approximately 6% of the Fall 2021 student body). An additional 3,810 students are enrolled in majors that hold between 50 and 199 students each.

**Figure 3. Low Utilization Majors**



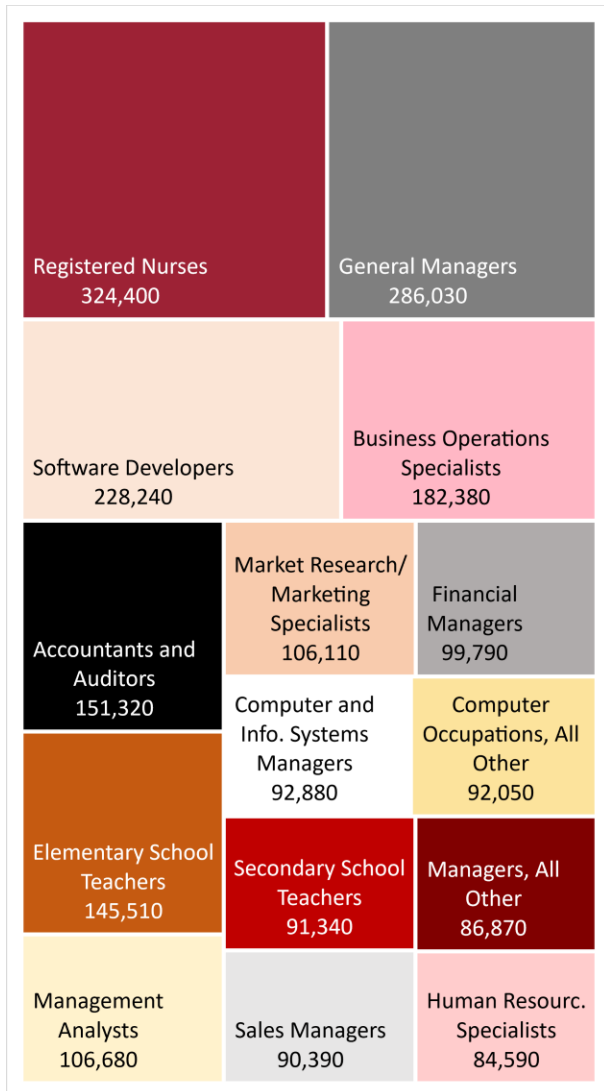
Excludes 701 undeclared students.

[Data source: CSU Chico Enrollment Dashboard](#)

*Occupational Outcomes*

Data from the U.S. Bureau of Labor Statistics is used to evaluate the number of persons employed in certain occupations as of 2021, as well as the median annual wage for these occupations. Figure 4 shows the most common jobs in California as of 2021 that have a related field of study at Chico State. Each of these occupations employed over 84,000 people in 2021.

**Figure 4. Prevalent Jobs in California as Represented by Total Persons Employed in CA 2021**



The above chart includes only occupations with an associated major at Chico State.

[Data Source: U.S. Bureau of Labor Statistics May 2021 Occupational Employment and Wage Statistics \(OEWS\) Survey](#)

In examining jobs with related majors at Chico State, registered nurse is the most commonly held job in California as of 2021. Other prevalent California jobs include computer-related occupations, managers, teachers, and some specialized professions likely to be present at a variety of companies, such as accountants, marketing professionals, and human resources specialists.

**Figure 5. Highest Paying Jobs in California as Represented by Annual Median Wage in CA 2021**



Includes only occupations that employ over 500 people in CA and have a related major at Chico State.

[Data Source: U.S. Bureau of Labor Statistics May 2021 Occupational Employment and Wage Statistics \(OEWS\) Survey](#)

Unsurprisingly, the highest paying jobs in California include executive and management positions. Some types of scientists, engineers, software developers, and post-secondary teachers also make comparable salaries (over \$130,000 per year).

The final element we use to assess labor market outcomes is the extent to which an occupation is expected to grow by 2030.

**Figure 6. Growing Jobs in California as Represented by Projected Increase in Available Jobs by 2030**

Occupation	Persons Employed in CA 2020	Projected Persons Employed in CA 2030	Projected Increase by 2030
General Managers	285,700	339,100	+53,400
Market Research/ Marketing Specialists	109,900	147,600	+37,700
Registered Nurses	323,900	358,900	+35,000
Financial Managers	100,300	127,400	+27,100
Comp. and Info. Systems Managers	94,700	117,200	+22,500
Management Analysts	127,000	148,500	+21,500
Accountants and Auditors	160,600	181,300	+20,700
Computer Occupations	107,900	128,100	+20,200
Exercise Trainers	30,200	49,300	+19,100
Medical and Health Serv. Managers	51,500	69,800	+18,300
Human Resources Specialists	85,300	103,300	+18,000

The above chart includes only occupations with an associated major at Chico State.

[Data source: Bureau of Labor Statistics Employment Projections](#)

In addition to currently being some of the most prevalent jobs in California, opportunities for general managers, market research/ marketing professionals, registered nurses, financial managers, management analysts, accountants, information

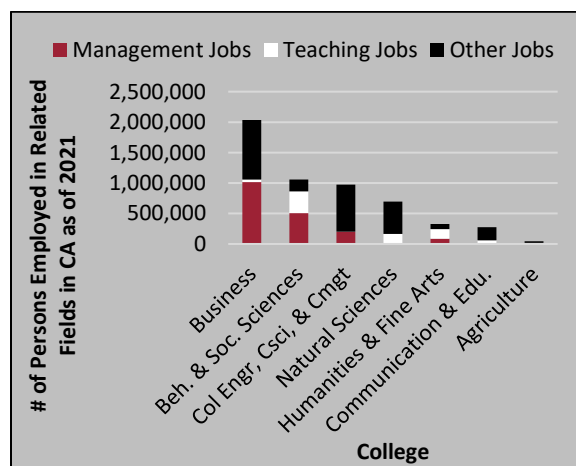
technology staff, and human resources specialists are expected to grow substantially. The U.S. Bureau of Labor Statistics projects all of the occupations listed in Figure 6 to add at least 18,000 jobs by 2030.

*Major and Labor Market Alignment*

The final component of this analysis is evaluating the extent to which majors at Chico State align to the job market in California. Colloquial wisdom would suggest that STEM and business degrees result in more job opportunities for students. Research shows that another key factor lies in the specificity of a degree program (Leighton et al., 2020). For example, majors that teach a combination of soft and hard skills may open up a broad spectrum of generalist, management opportunities. More specific and skills-based majors such as engineering or computer science may be relevant to a narrower range of jobs, but provide students with access to a substantial amount of lucrative opportunities within those fields.

This result seems to be confirmed when evaluating California job market data, as a significant portion of jobs related to business and social sciences are in management positions. Teaching positions also make up a large portion of social science, natural science, and humanities related jobs. Business, computer science/ engineering, and natural science fields employ the most people in professional non-management and non-teaching positions.

**Figure 7. Link Between College at Chico State and Job Opportunities in California**



An occupation may be relevant to multiple colleges.

[Data Sources: CSU Chico Enrollment Dashboard, \(OEWS\) Survey](#)

**Figure 8. Link Between Chico State Majors and Projected Job Opportunities in California**

High Utilization Majors 200+ Students Enrolled Fall 2021		Moderate Utilization Majors 50-<200 Students Enrolled Fall 2021		Low Utilization Majors < 50 Students Enrolled Fall 2021	
Major	# of Projected Job Openings in Related Fields by 2030	Major	# of Projected Job Openings in Related Fields by 2030	Major	# of Projected Job Openings in Related Fields by 2030
Management	148,900	Business Admin.	148,900	Business Analysis	77,400
Finance	91,500	Public Administration	62,100	Operations Info. Sys.	22,700
Marketing	66,600	Information Systems	37,300	Health Care Mgmt.	18,300
Computer Science	47,500	Human Resources	36,400	Radio-TV-Film	14,100
Nursing (Pre & RN)	36,000	Management Info. Sys.	22,000	Musical Theatre	14,000
Child Development	26,100	Health Services Admin.	18,300	Chemistry	13,300
Kinesiology	24,900	Biology	15,900	Music Education	12,900
Accountancy	22,600	Electrical Engineering	15,100	Physics	12,000
Public Health	22,400	Broadcast Arts	14,100	Mathematics Edu.	11,800
Social Work	15,700	Art	13,400	Graphic Design	11,800
Civil Engineering	12,600	Mathematics	12,100	Teaching Languages	11,500
Construction Engr.	12,500	Computer Engineering	11,100	Theatre Arts	10,900
Cell & Mol. Biology	12,000	Concrete Indus. Mgmt.	10,700	German	10,800
Mechanical Engr.	11,300	Biochemistry	10,400	French	10,800
Speech Comm.	9,800	Music	10,100	Spanish	10,800
Political Science	8,500	Dietetics	9,700	Communications	9,800
English	8,400	Social Science	9,100	Botany	6,000
Anim. & Game Dev.	2,900	Economics	8,900	Creative Writing	5,200
Criminal Justice	2,500	History	8,000	Statistics	4,600
Psychology	1,000	Mechatronic Engr.	7,800	Applied Math	4,600
Sociology	600	Communication Design	7,500	Atmospheric Science	4,600
Animal Science	-3,600	Environmental Science	6,900	School Psychology	4,300
Agricultural Business	-4,900	Comm. Disorders	6,500	Family Counseling	3,400
		Ecology	6,300	Agricultural Comm.	3,400
		Speech Pathology	6,300	Geology	2,700
		Journalism	5,300	Geosciences	2,700
		Microbiology	4,900	Natural Science	2,600
		Music Industry & Tech.	4,600	Art History	2,100
		Agric. Science & Edu.	1,700	Museum Studies	600
		Art (Performance)	1,700	Geography	500
		Anthropology	300	Education	400
		Recreation Admin.	100	Psych. Research	300
		Agronomy/Crop Sci.	-3,400	Religious Studies	200
				Philosophy	200

*Includes only Chico State majors with available California employment projection data. An occupation may be relevant to multiple majors. Projected openings represent jobs estimated to be added in California between 2020 and 2030.*

*Data Sources: [CSU Chico Enrollment Dashboard](#), [Bureau of Labor Statistics Employment Projections](#)*

Majors at Chico State with the most projected future job openings in California include management, business administration and analysis, finance, marketing, public administration, computer science and information systems, human resources, and nursing. For each of these types of degree programs, there are at least 30,000 jobs projected to be added in California by 2030. Fewer opportunities will be available in fields related to agriculture, animal science, recreation, religious studies, and philosophy (see Figure 8). However, this does not mean this type of education program does not serve an important role in contributing to these fields. More information on projected job openings related to specific majors can be found in Figure 8.

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### Discussion

Overall, choice of college major is likely to have an impact on the types of jobs accessible to graduating students, with more specialized, technical positions available to business, computer science, and engineering students. On the other hand, the majority of jobs in social science or humanities fields are management or teaching positions.

The most frequently chosen majors at Chico State include psychology, management, nursing, marketing, criminal justice, liberal studies, computer science, sociology, and construction engineering. The job market in California looks promising for most of these fields with growth in available jobs expected for managers, business/finance/marketing professionals, public administrators, computer scientists, human resource specialists, and nurses. Under-utilized areas of study at Chico State include business analytics and operations information systems, for which there are expected to be high rates of growth in relevant jobs over the next ten years. There are also significant opportunities in California for those interested in child development, kinesiology, accounting, public health, and health care management/administration.

As noted earlier, the highest paying jobs in California are primarily management jobs, with some exceptions for engineers, scientists, and professors in technical fields.

While there are fewer projected job openings in California related to agriculture and humanities

fields like philosophy/religious studies, some jobs in these domains include teacher, manager, archivist, curator, and museum technician.

One additional goal of this report is to identify helpful and accessible resources that could assist students across majors with clarifying the types of occupations available to them. The public data sources in this paper can be used by students, faculty, and university staff to discover which occupations are related to their particular major or area of focus. Links to these resources are listed below.

While the intent of this paper is to look at the Chico State student body as whole, an area for further research involves demographic differences in major selection. There is a wealth of research on the correlation between gender/ ethnicity and choice of major, as women and some ethnic groups continue to be under-represented in STEM fields. It would be interesting to observe these effects at Chico State.

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### Resources

- [Occupational Employment and Wage Statistics](#): provides employment and wage statistics for a large range of occupations
  - [Bureau of Labor Statistics Employment Projections](#): shows a 10-year projection of expected growth for many occupations
  - [College Board Career Search](#): displays data on median income, required education, and projected job growth for various careers
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### References

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- Leighton, Margaret, and Jamin D. Speer. "Labor Market Returns to College Major Specificity." *European Economic Review*, vol. 128, 2020, p. 103489–, <https://doi.org/10.1016/j.euroecorev.2020.103489>.