

ECONOMICS (BS)

Degree Requirements and Curriculum

In addition to the program requirements on this page, students must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>) section of this catalog, including:

- 40 units of upper-division courses
- 2.0 GPA
- Graduation Writing Requirement (GWR)
- U.S. Cultural Pluralism (USCP)

Note: No Major, Support or Concentration courses may be selected as credit/no credit. In addition, no more than 12 units of cooperative or internship courses can count towards your degree requirements.

Code	Title	Units
MAJOR COURSES		
Select from the following: (4B) ¹		6
ECON 2001 & ECON 2021	Survey of Economics and Using Big Data to Solve Economic and Social Problems	
ECON 2030 & ECON 2040	Microeconomics and Macroeconomics	
ECON 3015 & 3015A	Programming for Economics and Analytics and Programming for Economics and Analytics Project	4
ECON 3021	Econometrics	4
ECON 3030	Intermediate Microeconomics	4
ECON 3040	Intermediate Macroeconomics	4
ECON 3050	The Economics of Equity and Social Welfare	4
ECON 4460	Applied Senior Project	4
Economics and Project Electives		
Select from the following: ²		12
ECON 4010 & 4010A	Mathematical Economics and Mathematical Economics Project	
ECON 4011 & 4011A	Optimization in Julia for Economics and Data Science and Julia for Data Analysis Project	
ECON 4012 & 4012A	Probability Models for Economic Decisions and Probability Models for Economic Decisions Project	
ECON 4013 & 4013A	Experimental and Behavioral Economics and Experimental and Behavioral Economics Project	
ECON 4021 & 4021A	Advanced Econometrics and Advanced Econometrics Project	
ECON 4024 & 4024A	Applied Forecasting and Applied Forecasting Project	
ECON 4025 & 4025A	Causal Machine Learning for Economics and Causal Machine Learning for Economics Project	
ECON 4031 & 4031A	Industrial Organization and Industrial Organization Project	
ECON 4042 & 4042A	Monetary Economics and Monetary Economics Project	
ECON 4043 & 4043A	International Monetary Economics and International Monetary Economics Project	
ECON 4052 & 4052A	Public Finance and Public Policy and Public Finance and Public Policy Project	
ECON 4053 & 4053A	Labor Economics and Labor Economics Project	
ECON 4055 & 4055A	Urban Economics and Urban Economics Project	

ECON 4061 & 4061A	International Trade Theory and International Trade Project	
ECON 4071 & 4071A	Environmental Economics and Environmental Economics Project	
ECON 4072 & 4072A	Economics of Energy and Resources and Economics of Energy and Resources Project	
ECON 4073 & 4073A	Economics of Land and Water and Economics of Land and Water Project	

General Curriculum in Economics or Concentration
 (See General Curriculum in Economics and list of Concentrations below) 20-22

SUPPORT COURSES		
BUS 2207 or BUS 2214	Legal Responsibilities of Business ³ Financial Accounting	3
MATH 1264	Calculus for Data Science I (2) ¹	4
MATH 1265	Calculus for Data Science II	4
STAT 1510	Statistics I	3
Select from the following:		3
BUS 1342	Financial Institutions ⁴	
BUS 2215	Managerial Accounting ⁵	
BUS 3343	Quantitative Methods in Finance ⁶	
BUS 3346	Principles of Marketing ⁷	
BUS 3387	Organizational Behavior ⁸	
BUS 3391	Information Systems ⁹	
Select any 3000-4000 level ECON course ¹⁰		

GENERAL EDUCATION (GE)
 (See GE program requirements below) 37

FREE ELECTIVES
 Free Electives¹¹ 2-4

Total Units **120**

¹ Required in Major or Support; also satisfies General Education (GE) requirement.
² Lecture and activity courses should be taken in the same term.
³ BUS 2214 is required for Accounting, Management and Human Resources, and/or Information Systems Management concentrations or additional coursework might be needed to complete the concentration.
⁴ Required course for students pursuing the Entrepreneurship concentration.
⁵ Required course for students pursuing the Accounting concentration.
⁶ Required course for students pursuing Financial Management and/or Real Estate Finance concentrations.
⁷ Required course for students pursuing Marketing Management and/or Consumer Packaging concentrations.
⁸ Required course for students pursuing Management and Human Resources concentration.
⁹ Required course for students pursuing Information Systems and Analytics concentration.
¹⁰ Option for students pursuing the General Curriculum in Economics or Economics in Data Science concentration.
¹¹ If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

Concentrations

General Curriculum in Economics

The General Curriculum in Economics consists of at least 6 units of 3000-4000 level (upper division) ECON courses plus 15 units of any upper-division courses.

Accounting

Code	Title	Units
REQUIRED COURSES		
BUS 3319	Data Analytics and Accounting Information Systems	3
BUS 3320	Federal Income Taxation for Individuals	3

BUS 3321	Intermediate Accounting I	3
BUS 3322	Intermediate Accounting II	3
BUS 3323	Financial Statement Auditing	3
Accounting Electives		
Select from the following:		6
BUS 4424	Advanced Data Analytics in Accounting	
BUS 4425	Advanced Managerial Accounting with Data Analytics	
BUS 4426	Taxation of Corporations and Partnerships	
BUS 4427	Advanced Financial Reporting	
BUS 4428	Independent Study in Accounting	

Total Units **21**

Consumer Packaging

Code	Title	Units
REQUIRED COURSES		
BUS 3396	Consumer Insights	3
BUS 4418	Marketing Research	3
ITP 2234	Packaging Design Fundamentals	3
ITP 3330	Packaging Fundamentals ¹	3
ITP 3334	Structural Packaging Design	3
ITP 4475	Distribution Packaging Dynamics	3
Approved Electives		
Select from the following: ¹		3
ITP 2241	Industrial and Packaging Materials ²	
ITP 3304	International Supply Chains	
ITP 3341	Packaging Polymers and Processing	
ITP 3371	Supply Chain Management in Manufacturing and Services	
ITP 4408	Fiber-Based Packaging	
ITP 4409	Packaging Machinery and Processes	
ITP 4411	Packaging Sustainability	
ITP 4414	Packaging Laws and Regulations	
ITP 4430	Healthcare Packaging	

Total Units **21**

¹ Courses taken to meet a major course requirement cannot be double-counted in the concentration.

² CHEM 1120 is recommended for those pursuing the Consumer Packaging concentration to fulfill GE Area 5A & 5C.

Economics for Data Science

Code	Title	Units
REQUIRED COURSES		
Select from the following: ¹		4
ECON 4010 & 4010A	Mathematical Economics and Mathematical Economics Project	
ECON 4011 & 4011A	Optimization in Julia for Economics and Data Science and Julia for Data Analysis Project	
Select from the following: ¹		4
ECON 4021 & 4021A	Advanced Econometrics and Advanced Econometrics Project	
ECON 4024 & 4024A	Applied Forecasting and Applied Forecasting Project	
ECON 4025 & 4025A	Causal Machine Learning for Economics and Causal Machine Learning for Economics Project	4

Approved Electives

Select from the following: ¹		9
BUS 4469	Foundations of Financial Technology	
ECON 4011	Optimization in Julia for Economics and Data Science	
ECON 4011A	Julia for Data Analysis Project	
ECON 4012	Probability Models for Economic Decisions	
ECON 4012A	Probability Models for Economic Decisions Project	
ECON 4021	Advanced Econometrics	
ECON 4021A	Advanced Econometrics Project	
ECON 4024	Applied Forecasting	
ECON 4024A	Applied Forecasting Project	
IME 3302	Operations Research and Management	
MATH 2031	Transition to Advanced Mathematics	
MATH 2270	Special Topics	
MATH 2341	Linear Analysis	
MATH 2621	Introduction to Mathematical Optimization	
MATH 3152	Advanced Linear Algebra	
MATH 3351	Differential Equations and Boundary Value Problems	
MATH 4342	Nonlinear Dynamical Systems	
MATH 4352	Partial Differential Equations	
MATH 4911	Game Theory	

Total Units **21**

¹ If a course is taken to meet a Major or Support requirement, it cannot be double-counted as an Elective for the concentration.

Entrepreneurship

Code	Title	Units
REQUIRED COURSES		
BUS 3310	Introduction to Entrepreneurship	4
BUS 3330	Funding and Managing Startup Companies	4
ITP 4406	Business-to-Business Complex Solutions Selling	3
BUS 4447 or BUS 4488	Defining and Building Technology Startups Building a Startup Skill Set	4
Approved Electives		
Select from the following: ^{1,2}		6-8
BUS 3311 or BUS 4312	Managing Technology in the International Legal Environment Entrepreneurship Law	
BUS 3313	Customer Development	
BUS 4408	Innovation and Entrepreneurship Through Disruptive Technologies	
BUS/COMS 4458 or BUS 2234	Solving Big World Challenges Introduction to Design Thinking	
BUS 4489 & 4489A	Negotiation and Negotiation Project	
ITP 3326 or ITP 3371	Product Design and Development Supply Chain Management in Manufacturing and Services	
ITP 4428	Commercialization of Innovation	

Total Units **21**

¹ Units in excess of total will be applied towards major's free electives.

² Courses taken to meet a major course requirement cannot be double-counted in the concentration.

Financial Management

Code	Title	Units
REQUIRED COURSES ¹		
BUS 3411	Finance Practicum	1
BUS 3431	Security Analysis and Portfolio Management	4
BUS 3438	Corporate Finance	4
BUS 3441 or BUS 3440	Financial Modeling and Analytics in Python or R Financial Modeling and Visualization in Excel	4
Select one track from the following: ²		9-11
Financial Analytics Track		
BUS 4442	Introduction to Futures and Options	
BUS 4468	Blockchain in Finance ³	
BUS 4469	Foundations of Financial Technology ³	
ECON 3015	Programming for Economics and Analytics	
ECON 3021 or STAT 3430	Econometrics Applied Regression Analysis	
Financial Management Track		
BUS 3443	Case Studies in Finance	
BUS 4439	Fixed Income Securities Market	
BUS 4434	Real Estate Finance	
BUS 4442	Introduction to Futures and Options	
BUS 4448	Mergers and Acquisitions ⁴	
ECON 3015	Programming for Economics and Analytics	
ECON 3021 or STAT 3430	Econometrics Applied Regression Analysis	
Financial Planning and Wealth Management Track		
BUS 3443	Case Studies in Finance	
BUS 4434	Real Estate Finance	
BUS 4437	Retirement and Estate Planning ⁵	
BUS 4445	Risk Management and Insurance Planning ⁵	
ECON 3021 or STAT 3430	Econometrics Applied Regression Analysis	
Total Units		22

¹ All students need an approval from the finance chair to enroll in the Financial Management concentration.

² Courses taken to meet a major course requirement cannot be double-counted in the concentration. Units in excess of total will be applied towards major's free electives.

³ Highly recommended for students in the Financial Analytics track.

⁴ Highly recommended for students in the Financial Management track.

⁵ Highly recommended for students in the Financial Planning and Wealth Management track.

Information Systems and Analytics

Code	Title	Units
REQUIRED COURSES		
BUS 3392	Business Application Development	3
BUS 3393	Database Systems in Business	3
BUS 3394	Systems Analysis and Design	3
BUS 3399	IT Infrastructure and Security Management	3
BUS 4497	Business Analytics	3
Select from the following:		3
BUS 3392A	Business Application Development Project	
BUS 3393A	Database Systems in Business Project	
BUS 3394A	Systems Analysis and Design Project	

BUS 3399A	IT Infrastructure and Security Management Project	
BUS 4497A	Business Analytics Project	
Approved electives		
Select from the following:		3
BUS 3395	Information Systems Project Management	
BUS 4486	Social Media Text Mining	
BUS 4490	Data Visualization	
BUS 4492	Technology-Supported Collaboration	
BUS 4493	User Experience Analysis and Design	
BUS 4496	Software Testing	
BUS 4498	Directed Topics in Information Systems	
BUS 4499	Data Communications and Networking	
Total Units		21

Management and Human Resources

Code	Title	Units
REQUIRED COURSES		
BUS 3384	Human Resources Management	3
BUS 3388	Training, Developing, and Managing Employees	3
BUS 4477	Management Consulting, Change, and Development	3
BUS 4489	Negotiation	3
Select from the following:		3
BUS 3384A	Human Resources Management Project	
BUS 3388A	Training, Developing, and Managing Employees Project	
BUS 4477A	Change Management Project	
BUS 4489A	Negotiation Project	
Approved Electives		
Select from the following: ^{1, 2}		6-7
BUS 3310	Introduction to Entrepreneurship	
BUS 3380	Work and Wellbeing	
BUS 3382	Leadership and Organizations	
BUS 4430	Internship/Cooperative Education	
BUS 4475	Rewarding and Compensating Employee Performance	
BUS 4476	Leading Social Innovation	
BUS 4480	People Analytics	
BUS 4481	Advanced Topics in Management and Human Resources	
BUS 4490	Data Visualization	
BUS 4492	Technology-Supported Collaboration	
BUS 4497	Business Analytics	
Total Units		21

¹ Courses taken to meet a major course requirement cannot be double-counted in the concentration.

² Units in excess of total will be applied towards major's free electives.

Marketing Management

Code	Title	Units
REQUIRED COURSES		
BUS 3396 & 3396A	Consumer Insights and Consumer Insights Project	4
BUS 4418 & 4418A	Marketing Research and Marketing Research Project	4
Approved Electives		
Select from the following: ¹		12

BUS 3347	Professional Selling Skills
BUS 4421 & 4421A	Marketing Analytics and Marketing Analytics Activity
BUS 4423 & 4423A	Digital Marketing and Digital Marketing Activity
BUS 4430	Internship/Cooperative Education ²
BUS 4450 & 4450A	Current Topics in Marketing and Current Topics in Marketing Activity
BUS 4451 & 4451A	New Product Development and Launch and New Product Development and Launch Project
BUS 4453 & 4453A	Digital and New Media Marketing and Digital and New Media Marketing Project
BUS 4454 & 4454A	Marketing Projects and Marketing Projects Activity
BUS 4455 & 4455A	Marketing Strategy and Marketing Strategy Project
BUS 4457 & 4457A	Integrated Marketing Communications and Integrated Marketing Communications Project

Total Units **20**

¹ Courses taken to meet a major course requirement cannot be double-counted in the concentration.

² This course does not have an activity. Marketing requires this course to be four units.

Real Estate Finance

Code	Title	Units
REQUIRED COURSES ^{1,2}		
BUS 3431	Security Analysis and Portfolio Management	4
BUS 3440	Financial Modeling and Visualization in Excel	4
BUS 4434	Real Estate Finance	4
Approved Electives		
Select from the following: ³		9
BUS 3441	Financial Modeling and Analytics in Python or R	
BUS 3443	Case Studies in Finance	
BUS 4409	Law of Real Property and Real Estate	
BUS 4439	Fixed Income Securities Market	
BUS 4469	Foundations of Financial Technology	
CM 4475	Real Property Development Principles ⁴	
ECON 3021	Econometrics	
ECON 3039	Microeconomics for Business and Public Policy	
ECON 4055	Urban Economics	

Total Units **21**

¹ All students need an approval from the finance department chair to enroll in the concentration.

² All students enrolled in the concentration are recommended to pursue a minor with the CAED department. The most popular minor is the Real Estate Property Development minor.

³ Courses taken to meet a major course requirement cannot be double-counted in the concentration.

⁴ Highly recommended for students concentrating in real estate finance. This course also counts toward the real estate development minor.

General Education (GE) Requirements

General Education (GE) Requirements

- 43 units required, 6 of which are specified in Major and/or Support.
- If any of the remaining 37 Units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

- See the complete GE course listing (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>).
- A grade of C- or better is required in one course in each of the following GE Areas: 1A (English Composition), 1B (Critical Thinking), 1C (Oral Communication), and 2 (Mathematics and Quantitative Reasoning).

Lower-Division General Education

Area 1	English Communication and Critical Thinking	
1A	Written Communication	3
1B	Critical Thinking	3
1C	Oral Communication	3
Area 2	Mathematics and Quantitative Reasoning	
2	Mathematics and Quantitative Reasoning (3 units in Support) ¹	0
Area 3	Arts and Humanities	
3A	Arts	3
3B	Humanities: Literature, Philosophy, Languages other than English	3
Area 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	
4A	American Institutions (Title 5, Section 40404 Requirement)	3
4B	Social and Behavioral Sciences (3 units in Major) ¹	0
Area 5	Physical and Life Sciences	
5A	Physical Sciences	3
5B	Life Sciences	3
5C	Laboratory (may be embedded in a 5A or 5B course)	1
Area 6	Ethnic Studies	
6	Ethnic Studies	3

Upper-Division General Education

Upper-Division 2/5	Mathematics and Quantitative Reasoning or Physical and Life Sciences	3
Upper-Division 3	Arts and Humanities	3
Upper-Division 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	3

Total Units
37

¹ Required in Major or Support; also satisfies General Education (GE) requirement.