

ECONOMICS

<http://www.pacific.edu/Academics/Schools-and-Colleges/College-of-the-Pacific/Academics/Departments-and-Programs/Economics.html>

Phone: (209) 645-4418

Location: WPC 098

Manizha Sharifova, Chair

Degrees Offered

Bachelor of Arts

Bachelor of Science

Majors Offered

Economics (BA)

Economics (BA)/Master of Public Policy Blended Program

Economics (BS)

-Applied Economics

-Mathematical Economics

Economics (BS)/Master of Public Policy Blended Program

Economics (BS)/Master of Science in Data Science Pathway Program

Minors Offered

Economics

Economics

Economics is a social science which, at its root, is the study of behavior—of individuals, firms, organizations and governments. Economics studies how these groups make choices and the implications of their choices for themselves, for markets, and for the local, national and global economies. Economics is not a collection of information to be learned, rather, it's a way of thinking and a set of analytical tools that helps better understand everything from banking to baseball. The world is changing rapidly, jobs that students aspire to today may not exist tomorrow; but an understanding of the core concepts of economics will continue to provide students with the ability to conduct meaningful, valuable analytical work across a wide variety of occupations, even those that do not yet exist.

Degrees in Economics

All Economics majors will take the same core classes, providing them with a solid foundation in the concepts, tools and analytical methods of economics. Students can then choose to pursue a Bachelor of Arts or a Bachelor of Science degree, both of which are structured to give students a greater depth of understanding in a few areas of Economics and experience applying their analytical skills and economic knowledge to real-world issues and problems.

The Bachelor of Arts degree is designed to allow students to tailor their upper division Economics curriculum based on their interests, taking advantage of the wide variety of fields with which the study of Economics is compatible. Faculty advisers can help students create plans of study (e.g. International Economics, Political Economy, Monetary Economics, Economics and Law) that fit best with the students' academic and career goals. This degree is exceptionally well-suited for students who want to double-major or minor in another discipline.

The Bachelor of Science degree also allows students to pair their study of Economics with other disciplines, but has greater quantitative/

analytical requirements than the Bachelor of Arts. Within the Bachelor of Science degree, students can choose one of two tracks: 1) the Applied Economics track, which is ideal for students interested in both Economics and Business and includes several courses, such as accounting and business law, from the Eberhardt School of Business; or 2) the Mathematical Economics track, which is designed for students interested in Applied Math or for those preparing to attend graduate school in Economics and includes several courses from the Department of Mathematics as requirements.

Cooperative Programs Offered

3+2 BS/BA Economics and Masters in Public Policy (McGeorge School of Law)

The Department of Economics, in collaboration with the McGeorge School of Law, offers students the opportunity to pursue a Master of Arts degree in Public Policy providing an undergraduate degree with an accelerated pathway to a professional degree. A degree in economics and public policy provides students with the skills in problem-solving, data analysis, critical thinking, and decision-making for solving specific problems and evaluating how local, state, and/or federal policies can alleviate those problems.

5-year Applied Economics (MS at Marquette University, Milwaukee, Wisconsin)

The Department of Economics, in collaboration with the Economics Department at Marquette University in Milwaukee, Wisconsin, offers students the opportunity to pursue a Master of Science degree in Applied Economics (MSAE) at Marquette with specializations ranging from Business, Financial, International, and Real Estate Economics to Marketing Research or a general economics track. This accelerated degree is designed to be completed within 5 years of entering Pacific.

Interested students should contact the Economics Department chair before the start of their junior year.

Students who successfully complete an Economics degree, will have achieved the following Program Learning Outcomes:

1. Thinking critically from an economic perspective

Apply the theory and tools of microeconomic and macroeconomic analysis to explain historical outcomes and to critique contemporary policy from an economic perspective.

2. Conducting economic analysis

Inform decision-making by developing an analytical framework to conduct research—working independently and as part of a team—including identifying, compiling, and synthesizing relevant information and interpreting data using appropriate statistical analysis.

3. Applying quantitative reasoning to economics

Apply mathematical tools, concepts or approaches, as appropriate, to enhance comprehension of economic concepts and models.

4. Communicating economic concepts and analysis

Clearly, concisely, and accurately communicate—orally or in written form—the process, results, and implications of economic analysis to a range of audiences.

Bachelor of Arts Major in Economics

In order to earn the bachelor of arts degree with a major in economics, students must complete a minimum of 120 units with a Pacific cumulative and major/program grade point average of 2.0.

I. General Education Requirements

For more details, see General Education (<http://catalog.pacific.edu/stocktongeneral/generaleducationprogram/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

- Artistic Process & Creation
- Civic & Global Responsibility
- Language & Narratives
- Quantitative Reasoning
- Scientific Inquiry
- Social Inquiry
- World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

- Writing
- Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. College of the Pacific BA Requirement

Students must complete one year of college instruction or equivalent training in a language other than English.

Note: 1) Transfer students with sophomore standing are exempt from this requirement.

III. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

IV. Major Requirements

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4
ECON 101	Intermediate Microeconomic Analysis	4
ECON 103	Intermediate Macroeconomic Analysis	4
ECON 161	Empirical Methods	4
or ECON 190	Econometrics	
ECON 198	Professional Development Seminar	1
Select one of the following:		4
MATH 035	Elementary Statistical Inference	
MATH 037	Introduction to Statistics and Probability	
INTL 101	Social Science Research Methods	

ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055

Bachelor of Science Major in Economics

Students must complete a minimum of 120 units with a Pacific cumulative and major/program grade point average of 2.0 in order to earn the bachelor of science degree with a major in economics.

I. General Education Requirements

For more details, see General Education (<http://catalog.pacific.edu/stocktongeneral/generaleducationprogram/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

- Artistic Process & Creation
- Civic & Global Responsibility
- Language & Narratives
- Quantitative Reasoning
- Scientific Inquiry
- Social Inquiry
- World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

- Writing
- Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

III. Major Requirements

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4
ECON 101	Intermediate Microeconomic Analysis	4
ECON 103	Intermediate Macroeconomic Analysis	4
ECON 198	Professional Development Seminar	1
Select one of the following:		4
INTL 101	Social Science Research Methods	
MATH 035	Elementary Statistical Inference	
MATH 037	Introduction to Statistics and Probability	

IV. Complete One Of The Following Tracks:

Applied Economics Track

ECON 190	Econometrics	4
or ECON 161	Empirical Methods	
COMP 025	Computers and Information Processing (accepted)	4
or COMP 051	Introduction to Computer Science	
or COMP 061	Introduction to Programming for Data Science (COMP 061 Recommended)	
MATH 045	Introduction to Finite Mathematics and Calculus (accepted)	3
or MATH 051	Calculus I	
or MATH 053	Calculus II	
or MATH 055	Calculus III	
(MATH 055 Recommended)		

Four additional 3-4 unit Economics electives numbered higher than ECON 055*

***Note: 1)** Students with BUSI 031 and BUSI 053 only need 3 additional electives

Students, in conjunction with their advisors, will tailor their elective selection to best complement their other coursework and meet their educational goals. Suggested elective paths will be provided for students interested in pairing their study of Economics with other disciplines such as Math, Business, Physics, or Computer Science.

Mathematical Economics Track

ECON 101L	Intermediate Microeconomic Analysis Laboratory	1
ECON 190	Econometrics	4
MATH 051	Calculus I	4
MATH 053	Calculus II	4
MATH 055	Calculus III	4
MATH 141	Linear Algebra	4
or MATH 145	Applied Linear Algebra	

ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055

* MATH 101 - Introduction to Abstract Math is highly recommended for students pursuing an economics graduate degree.

Accelerated Path to 5-year Master of Science in Applied Economics at Marquette University, Milwaukee, Wisconsin

The Department of Economics, in collaboration with the Economics Department at Marquette University in Milwaukee, Wisconsin, offers students the opportunity to pursue a Master of Science degree in Applied Economics (MSAE) at Marquette with specializations ranging from Business, Financial, International, and Real Estate Economics to Marketing Research or a general economics track. This accelerated degree is designed to be completed within 5 years of entering Pacific, which is 1 year sooner than the usual required time to complete undergraduate and masters degrees.

Interested students would earn their BA or BS degree in economics at Pacific while following the typical 4-year plan. During this time, in consultation with academic advisers, they would also successfully complete

- At least one calculus course,
- ECON 190, and
- Two upper division economics courses (with a grade of "B" or better) specially tailored to satisfy 2 of the 10 courses (<http://business.marquette.edu/academics/msae-curriculum/>) required to complete the MSAE.

Students must inform their academic advisers of their interest in the program by the time they achieve junior standing or they may not be able to complete both degrees in 5 years.

Students would apply to the MSAE program at Marquette during the first semester of their final year at Pacific. Marquette requires all applicants to take either the GRE or GMAT exam and to have an overall GPA of 3.0 or better. *Admission to the MSAE program is at the sole discretion of Marquette and is not guaranteed.*

Bachelor of Arts Major in Economics/ Master of Public Policy Blended Program

Students must complete a minimum of 150 units with a Pacific undergraduate cumulative and major/program grade point average of 3.0 in order to earn the Bachelor of Arts in Economics degree and Master of Public Policy degree.

Note: 1) A total of eight upper division units can count towards both degrees. **2)** An additional 11 graduate units can count towards the BA degree. **3)** Acceptance into the graduate portion of this blended program is conditional on (a) completion of all undergraduate program requirements by the end of the seventh semester at Pacific and (b) a minimum 3.0 cumulative Pacific undergraduate GPA.

I. General Education Requirements

For more details, see General Education (<http://catalog.pacific.edu/stocktongeneral/generaleducationprogram/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

Artistic Process & Creation
Civic & Global Responsibility
Language & Narratives
Quantitative Reasoning
Scientific Inquiry
Social Inquiry
World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

Writing
Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. College of the Pacific BA Requirement

Students must complete one year of college instruction or equivalent training in a language other than English.

Note: 1) Transfer students with sophomore standing are exempt from this requirement.

III. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

IV. Major Requirements

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4
ECON 101	Intermediate Microeconomic Analysis	4
ECON 103	Intermediate Macroeconomic Analysis	4
ECON 111	History of Economic Thought	4
ECON 161	Empirical Methods	4
ECON 198	Professional Development Seminar	1
Select one of the following:		4

MATH 035	Elementary Statistical Inference
MATH 037	Introduction to Statistics and Probability
MATH 039	Probability with Applications to Statistics
INTL 101	Social Science Research Methods

ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055

V. Undergraduate Public Policy Preparation

Courses may be used also to meet general education and/or major/minor requirements.

ECON 053	Introductory Microeconomics	4
POLS 041	U.S. Government and Politics	4
SOCI 041	Social Problems	4

Select four of the following, with at least one each from Economics and Political Science:

Economics courses (Pick at least one)

ECON 131	Public Finance
ECON 157	Environmental and Natural Resource Economics
ECON 180	Labor Economics
ECON 183	Health Economics

Political Science courses (Pick at least one)

POLS 111	Introduction to Health Policy
POLS 170	U.S. Foreign Policy
POLS 174	Global Environmental Policy

Public Affairs courses

COMM 117	Public Advocacy
COMM 143	Intercultural Communication
HIST 132	American Immigration
HIST 133	Women in United States History
HIST 136	American Environmental History
SOCI 033	Introduction to Criminology and Criminal Justice
SOCI 111	Environmental Health & Justice
SOCI 125	Sociology of Health and Illness
SOCI 161	Urban Society

VI. Master of Public Policy Requirements

A minimum of 39 units is required to earn the MPP, including a 33-unit core of required courses.

A cumulative grade point average of 3.00 or higher is required for award of the MPP.

Core Courses - 33 units in four areas, including:

LAW - 6 units		
LAW 201	Law for Public Administration (Introduction to Law and Public Administration)	3
LAW 517	Statutes and Regulations	3
PUBLIC POLICY - 9 units		
PUB 211	Governance and Public Policy	3
PUB 214	Budgets, Financial Management	3
PUB 215	Capstone: Public Policy Analysis Case	3
ANALYTIC TOOLS - 12 units		
PUB 221	Economic Concepts and Tools	3
PUB 233	Public Manager Analytics	3
PUB 234	Advanced Quantitative Methods	3
PUBLIC ADMINISTRATION/LEADERSHIP - 6 units		

PUB 251	Foundations of Public Administration	3
PUB 241	Leaders, Organization Behavior	3

Electives: At least 6 units. Elective units may be applied towards an optional area of concentration.

Environmental and Water Policy - 6 Units

Complete 6 or more units from among these courses

LAW 230	Water Resources Law (This course is offered in a 2 and 3 unit format. If taken as 2 units, you must take 1 additional elective unit.)	3
LAW 507	Environmental Law	3
LAW 583	Water & Environmental Justice	3
PUB 291	Externship	3

Public Policy Advocacy - 6 units

Complete 6 or more units from among these courses

PUB 253	Legislative and Public Policy Practicum	3
PUB 242	Leading Systemic Change	3
LAW 505	Legislatures and Lawmaking	3
LAW 513	California Lobbying & Politics	2
LAW 699X	Negotiations	3
PUB 291	Externship	3

Non-Profit and Social Capacity Management - 6 Units

Complete 6 or more units from among these courses

PUB 243	Non-Profit Management	3
PUB 213	Enhancing Societal Capacity	3
PUB 242	Leading Systemic Change	3
LAW 699X	Negotiations	3
PUB 291	Externship	3

Bachelor of Science Major in Economics/ Master of Public Policy Blended Program

Students must complete a minimum of 150 units with a Pacific undergraduate cumulative and major/program grade point average of 3.0 in order to earn the Bachelor of Science in Economics degree and Master of Public Policy degree.

Note: 1) A total of eight upper division units can count towards both degrees. **2)** An additional 11 graduate units can count towards the BA degree. **3)** Acceptance into the graduate portion of this blended program is conditional on (a) completion of all undergraduate program requirements by the end of the seventh semester at Pacific and (b) a minimum 3.0 cumulative Pacific undergraduate GPA.

I. General Education Requirements

For more details, see General Education (<http://catalog.pacific.edu/stocktongeneral/generaleducationprogram/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars. Students

participating in the First Year Honors Program should complete an honors section of CORE 001 regardless of the number of college transfer units completed.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

Artistic Process & Creation
Civic & Global Responsibility
Language & Narratives
Quantitative Reasoning
Scientific Inquiry
Social Inquiry
World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

Writing
Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

III. Major Requirements

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4
ECON 101	Intermediate Microeconomic Analysis	4
ECON 103	Intermediate Macroeconomic Analysis	4
ECON 198	Professional Development Seminar	1
Select one of the following:		4
INTL 101	Social Science Research Methods	
MATH 035	Elementary Statistical Inference	
MATH 037	Introduction to Statistics and Probability	

IV. Complete One Of The Following Tracks:

Social Science Track

ECON 111	History of Economic Thought	4
ECON 190	Econometrics	4
ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055		16
Select one of the following:		4
COMP 051	Introduction to Computer Science	

COMP 061	Introduction to Programming for Data Science	
Select one of the following:		4
MATH 051	Calculus I	
Applied Economics Track		
Select one of the following:		4
ECON 161	Empirical Methods	
ECON 190	Econometrics	
Select one of the following:		4
COMP 025	Computers and Information Processing	
COMP 051	Introduction to Computer Science	
COMP 061	Introduction to Programming for Data Science	
Select one of the following:		4
MATH 045	Introduction to Finite Mathematics and Calculus	
MATH 051	Calculus I	
ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055		16
BUSI 031	Principles of Financial Accounting	4
BUSI 053	The Legal and Ethical Environment of Business	4

Note: 1) Students completing a concentration in Finance in the ESB need only complete 3 ECON electives.

Mathematical Economics Track

ECON 160	Mathematical Economics	4
ECON 190	Econometrics	4
ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055		12
MATH 051	Calculus I	4
MATH 053	Calculus II	4
MATH 055	Calculus III	4
MATH 075	Introduction to Linear Algebra	4
MATH 101	Introduction to Abstract Mathematics	4
MATH Elective (One 4-unit MATH course MATH 055 or higher) *		4

* Math electives must be beyond the required MATH 051, MATH 053 or MATH 055, and MATH 141 or MATH 145, but not including MATH 161, MATH 162 and MATH 166.

VI. Undergraduate Public Policy Preparation

Courses may be used also to meet general education and/or major/minor requirements.

ECON 053	Introductory Microeconomics	4
POLS 041	U.S. Government and Politics	4
SOCI 041	Social Problems	4

Select four of the following, with at least one each from Economics and Political Science:

Economics courses (Pick at least one)

ECON 131	Public Finance	
ECON 157	Environmental and Natural Resource Economics	
ECON 180	Labor Economics	
ECON 183	Health Economics	

Political Science courses (Pick at least one)

POLS 111	Introduction to Health Policy	
POLS 170	U.S. Foreign Policy	
POLS 174	Global Environmental Policy	

Public Affairs courses		
COMM 117	Public Advocacy	
COMM 143	Intercultural Communication	
HIST 132	American Immigration	
HIST 133	Women in United States History	
HIST 136	American Environmental History	
SOCI 033	Introduction to Criminology and Criminal Justice	
SOCI 111	Environmental Health & Justice	
SOCI 125	Sociology of Health and Illness	
SOCI 161	Urban Society	

VII. Master of Public Policy Requirements

A minimum of 39 units is required to earn the MPP, including a 33-unit core of required courses.

A cumulative grade point average of 3.00 or higher is required for award of the MPP.

Core Courses - 33 units in four areas, including:

LAW - 6 units		
LAW 201	Law for Public Administration (Introduction to Law and Public Administration)	3
LAW 517	Statutes and Regulations	3
PUBLIC POLICY - 9 units		
PUB 211	Governance and Public Policy	3
PUB 214	Budgets, Financial Management	3
PUB 215	Capstone: Public Policy Analysis Case	3
ANALYTIC TOOLS - 12 units		
PUB 221	Economic Concepts and Tools	3
PUB 233	Public Manager Analytics	3
PUB 234	Advanced Quantitative Methods	3
PUBLIC ADMINISTRATION/LEADERSHIP - 6 units		
PUB 251	Foundations of Public Administration	3
PUB 241	Leaders, Organization Behavior	3

Electives: At least 6 units. Elective units may be applied towards an optional area of concentration.

Environmental and Water Policy - 6 Units

Complete 6 or more units from among these courses		
LAW 230	Water Resources Law (This course is offered in a 2 and 3 unit format. If taken as 2 units, you must take 1 additional elective unit.)	3
LAW 507	Environmental Law	3
LAW 583	Water & Environmental Justice	3
PUB 291	Externship	3

Public Policy Advocacy - 6 units

Complete 6 or more units from among these courses		
PUB 253	Legislative and Public Policy Practicum	3
PUB 242	Leading Systemic Change	3
LAW 505	Legislatures and Lawmaking	3
LAW 513	California Lobbying & Politics	2
LAW 699X	Negotiations	3
PUB 291	Externship	3

Non-Profit and Social Capacity Management - 6 Units

Complete 6 or more units from among these courses

PUB 243	Non-Profit Management	3
PUB 213	Enhancing Societal Capacity	3
PUB 242	Leading Systemic Change	3
LAW 699X	Negotiations	3
PUB 291	Externship	3

Bachelor of Science in Economics/Master of Science in Data Science Pathway Program

Students must complete a minimum of 150 units with a Pacific undergraduate cumulative and major/program grade point average of 3.0 in order to earn the Bachelor of Science in Economics degree and Master of Science in Data Science degree.

Note: Acceptance into the graduate portion of this pathway program is conditional on (a) completion of all undergraduate program requirements by the end of the seventh semester at Pacific and (b) a minimum 3.0 cumulative Pacific undergraduate GPA.

I. General Education Requirements

For more details, see General Education (<http://catalog.pacific.edu/stocktongeneral/generaleducationprogram/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

Artistic Process & Creation
Civic & Global Responsibility
Language & Narratives
Quantitative Reasoning
Scientific Inquiry
Social Inquiry
World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

Writing
Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.)

III. Major Requirements

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4
ECON 101	Intermediate Microeconomic Analysis	4
ECON 103	Intermediate Macroeconomic Analysis	4
ECON 198	Professional Development Seminar	1
Select one of the following:		4
INTL 101	Social Science Research Methods	
MATH 035	Elementary Statistical Inference	
MATH 037	Introduction to Statistics and Probability	

IV. Complete One Of The Following Tracks:

Social Science Track

ECON 111	History of Economic Thought	4
ECON 190	Econometrics	4
ECON electives – 4 additional Economics courses (must be numbered ECON 71 or higher, excluding ECON 101L and ECON 103L, and including ECON 191 only with departmental approval.)		
Select one of the following:		4
COMP 051	Introduction to Computer Science	
COMP 061	Introduction to Programming for Data Science	
Select one of the following:		4
MATH 051	Calculus I	

Applied Economics Track

Select one of the following:		4
ECON 161	Empirical Methods	
ECON 190	Econometrics	
Select one of the following:		4
COMP 025	Computers and Information Processing	
COMP 051	Introduction to Computer Science	
COMP 061	Introduction to Programming for Data Science	
Select one of the following:		4
MATH 045	Introduction to Finite Mathematics and Calculus	
MATH 051	Calculus I	

ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055		
BUSI 031	Principles of Financial Accounting	4
BUSI 053	The Legal and Ethical Environment of Business	4

Note: 1) Students completing a concentration in Finance in the ESB need only complete 3 ECON electives.

Mathematical Economics Track

ECON 160	Mathematical Economics	4
ECON 190	Econometrics	4

ECON electives – Four additional 3-4 unit Economics electives numbered higher than ECON 055		
MATH 051	Calculus I	4
MATH 053	Calculus II	4
MATH 055	Calculus III	4
MATH 075	Introduction to Linear Algebra	4
MATH 101	Introduction to Abstract Mathematics	4
MATH Elective (One 4-unit MATH course MATH 055 or higher) *		4

* Math electives must be beyond the required MATH 051, MATH 053 or MATH 055, and MATH 141 or MATH 145, but not including MATH 161, MATH 162 and MATH 166.

V. Master of Science in Data Science Requirements

Master of Science in Data Science

Students must complete a minimum of 32 units with a Pacific cumulative grade point average of 3.0 to earn the master of science in data science degree.

ANLT 201	Linear Algebra for Data Science	1
ANLT 202	Frequentist Statistics	1
ANLT 203	Bayesian Statistics	1
ANLT 208	Research Methods for Data Science	1
ANLT 210	Software Methods for Data Science	1
ANLT 212	Analytics Computing for Data Science	1
ANLT 214	Data Engineering for Data Science	1
ANLT 222	Machine Learning for Data Science	1
ANLT 224	Data Wrangling	1
ANLT 232	Introduction to Data Visualization	1
ANLT 233	Dynamic Visualization	1
ANLT 234	Analytics Storytelling for Data Science	1
ANLT 242	Relational Databases	1
ANLT 243	NoSQL Databases	1
ANLT 272	Healthcare Case Studies	1
ANLT 276	Emphasis Case Studies	1
ANLT 282	Capstone Project	6
ANLT 283	Weekly Hot Topics *	3
Select three of the following:		3
ANLT 205	Consumer Analytics	
ANLT 206	Sentiment Analysis and Opinion Mining	
ANLT 207	Time Series Analysis	
ANLT 223	Advanced Machine Learning	
ANLT 273	Fraud Detection	
ANLT 274	Customer Analytics	
ANLT 275	Text Mining	

* Students will take three semesters of ANLT 283.

Note: 1) A total of twelve graduate units can count towards the BS degree.

Minor in Economics

Given the broad applicability of the concepts and analytical skills developed in the study of Economics, the minor in Economics is a valuable addition to nearly any field of study. The minor design is

intended to allow students majoring in a wide variety of disciplines to tailor their Economics course selection to best align with their academic and career plans. Students must complete a minimum of 6 Economics courses (as described below) with a Pacific minor grade point average of 2.0 or higher in order to earn the minor in economics.

Minor Requirements:

ECON 053	Introductory Microeconomics	4
ECON 055	Introductory Macroeconomics: Theory and Policy	4

ECON electives – 4 additional Economics courses (must be numbered ECON 71 or higher, excluding ECON 101L and including ECON 191 only with departmental approval) 16

Note: 1) 10 units must be completed at Pacific. 2) ECON 101 is strongly recommended. It is a prerequisite to several upper division courses. 3) BUSI 031 and BUSI 033 together can substitute for one of the economics electives.

Economics Courses

ECON 051. Economic Principles and Problems. 3 Units.

Students are introduced to the nature, significance and scope of economics. The principles of economic analysis are developed and used to examine current and/or controversial economic issues. Some sections may cover a wide variety of issues while may be offered with a particular focus (e.g. Environmental Economics, Health Economics, Economics of Gender.) This course is ideal for students who are unlikely to take another economics course and does not count towards the major or minor. Students can receive credit for ECON 051 only if it is taken prior to both ECON 053 and ECON 055. **(GE1B, GEGR)**

ECON 053. Introductory Microeconomics. 4 Units.

This course introduces the foundational tools used to analyze the economic behavior of individuals and firms—their decision-making given scarce resources, their interaction in different market structures and the implications of their behavior for the efficient and equitable allocation of resources. The course will also address the role of the government in influencing market outcomes. Prerequisites: Completion of the Fundamental Skills Math requirement, or placement into MATH 005 or MATH 005E. **(GE1A, GESO, PLAW)**

ECON 055. Introductory Macroeconomics: Theory and Policy. 4 Units.

This course introduces the concepts and tools of macroeconomics, which is the study of both national economies and the global economy as a whole. It develops the “economic way of thinking” and the concept of gross domestic product. The course explores business cycles, economic growth, unemployment, inflation, and financial crises, then applies the tools of fiscal policy (government spending and taxes) and monetary policy (money and interest rates) to manage them. Prerequisites: Completion of the Fundamental Skills Math requirement, or placement into MATH 005 or MATH 005E. **(GE1B, GEGR, PLAW)**

ECON 071. Global Economic Issues. 4 Units.

This course is an introduction to international trade, international finance and economic development. Economic principles and tools are used to understand the interconnected global economy. Topics include trade theory and policy; regional and multilateral trading system; trade and climate change; balance of payments; foreign exchange markets and exchange rate determination; and the role of foreign aid private capital flows and trade policy in economic development. Prerequisites: ECON 053; ECON 051 or 055. ECON 071 cannot be taken for credit if the student has taken or is concurrently enrolled in ECON 121 or ECON 123. ECON 071 is also listed as an SIS course.

ECON 087. Internship. 1-4 Units.

ECON 087A. Internship. 1-4 Units.

ECON 093. Special Topics. 4 Units.

ECON 101. Intermediate Microeconomic Analysis. 4 Units.

The behavior of individuals and firms in a market economy are examined along with price theory, distribution and welfare economics. The course provides a rigorous development of the tools that economists use for studying the allocation of resources. Prerequisite: ECON 053 with a "C-" or better.

ECON 101L. Intermediate Microeconomic Analysis Laboratory. 1 Unit.

This addition to ECON 101 presents microeconomic theory in a more rigorous, formal and mathematical way. This course is necessary for students who complete the Bachelor of Science – Mathematical Economics Track or who plan to attend graduate school in Economics. Prerequisites: ECON 053; MATH 033 or MATH 051.

ECON 103. Intermediate Macroeconomic Analysis. 4 Units.

This course examines the measurement of the level of economic activity the determinants of national income, employment and the price level. It also studies use and appraisal of economic data in the context of a dynamic market economy as well as stabilization problems and the relevance of fiscal, monetary and income policy. Prerequisites: ECON 053 and ECON 055 with a "C-" or above.

ECON 103L. Intermediate Macroeconomic Analysis Laboratory. 1 Unit.

This addition to ECON 103 presents macroeconomic theory in a more rigorous, formal and mathematical way. It is necessary for students who complete the Bachelor of Science – Mathematical Economics Track or plan to attend graduate school in Economics. Prerequisites: ECON 053 and ECON 055; MATH 033 and MATH 051.

ECON 111. History of Economic Thought. 4 Units.

The rise and fall of schools of economic thought around the world, as well as specific ideas, theories, doctrines, applications and policies are examined. The course connects the history of economic thought with the history of the underlying economies. We examine the effects of economic evolution, economic revolution and changes in technology resources, as well as contemporary political, social and religious developments. Expect lively discussions, particularly of the political influences that affect individual economists and the implications of their work. We read works about and by Adam Smith, David Ricardo, Thomas Malthus, John Stuart Mill, Karl Marx, modern microeconomists, Veblen, Keynes, and others. Prerequisites: ECON 053 and ECON 055 or permission of instructor.

ECON 121. International Trade. 4 Units.

Students study the economic theory surrounding the exchange of goods and services between countries and the application of this theory to current international issues. Topics include the determination of world trade patterns, the effects of changing trade patterns on income distribution within a country; the pros and cons of trade barriers; trade concerns of developing countries; and the effects of international trade on the world's natural environment. This course is also listed as an SIS course. Prerequisites: ECON 053 and ECON 055.

ECON 123. International Finance. 4 Units.

Students study the financial side of international economics. Topics include balance of payments accounts and the foreign exchange market; exchange rate determination and the macro economy; the international debt crisis and capital flight; and the history of international monetary systems. This course is also listed as an SIS course. Prerequisites: ECON 053 and ECON 055.

ECON 125. Economic Development. 4 Units.

Examines the plight of the world's poor countries. Discussions of the extent of world poverty, and a review of the evolution of ideas on the topic of economic development over the past three decades are included. The course considers the following types of questions: What are the causes of development and/or underdevelopment? Are Third World countries merely at a primitive stage of development analogous to European countries prior to the Industrial Revolution? What are the roles of climate, the legal system, education, health and sanitation, natural resources, technology, multinational corporations, religious beliefs and so on? Are rich countries making a meaningful effort to aid poor countries? Can we, or even should we, help? Should emphasis be placed on the agricultural or industrial sector? This course is also listed as an SIS course. Prerequisites: ECON 053 and ECON 055 or permission of instructor.

ECON 131. Public Finance. 4 Units.

Students study the role of the government in the economy. The course uses the tools of economic analysis to examine how government policies affect not only the efficiency with which the economy operates but also the welfare of its citizens. This course covers both the expenditure and the taxation sides of government activity, examines public choice questions of policy selection and implementation and, throughout the course, considers the equity implications of government actions. Primary focus is on government at the national level; however, significant attention is paid to issues relevant or specific to state and local governments. Prerequisites: ECON 053; ECON 051 or 055.

ECON 141. Money and Banking. 4 Units.

The nature of money and credit and their roles in directing the economic activity of a nation are examined. The course discusses the development and operation of the central bank and monetary institutions of the United States as well as problems of achieving full employment and price stability through monetary policy. Prerequisites: ECON 053 and ECON 055, or permission of instructor.

ECON 151. Urban Economics. 4 Units.

An economic analysis of the evolution, growth, and decline of urban areas and the location choice decisions of households and firms within urban areas. Attention then focuses on normative analyses of urban policy issues such as housing, poverty, crime and pollution. Prerequisite: ECON 053.

ECON 154. Industrial Organization and Policy. 4 Units.

The history, structure, conduct, and performance of industry as well as currently proposed industrial policy is examined. After studying the evolution of modern U.S. industries and firms; monopoly, oligopoly, and competitive structures in addition to anti competitive conduct among firms, the course analyzes government regulation of business, especially antitrust and price regulation policies, as well as recent trends to deregulation and reindustrialization. Prerequisite: ECON 053. Recommended: ECON 101.

ECON 157. Environmental and Natural Resource Economics. 4 Units.

The application of economic theory to natural resource and environmental issues is examined. Microeconomic principles are used to suggest what a proper balance between human activity and environmental quality might be and to analyze current environmental policy. Topics include renewable and non-renewable resources, common pool resources, climate change, non-market valuation, cost-benefit analysis, role of government and the private sector in environmental preservation. Prerequisite: ECON 053.

ECON 160. Mathematical Economics. 4 Units.

A mathematical analysis of neoclassical theories of production and consumption. This course studies differential calculus and linear algebra applied to unconstrained and constrained extrema, including the envelope properties of optimization problems. Primary emphasis is placed on the application of mathematics to economic theory. Topics include competitive and noncompetitive firms and industries, Cobb-Douglas and CES production functions, the Slutsky equation, and applications of homogeneous functions to economics. Prerequisites: ECON 101, ECON 103, MATH 051 or permission of instructor.

ECON 161. Empirical Methods. 4 Units.

This course teaches students to use current statistical software to perform empirical analysis of economic theory and applications. It is designed to provide students with practical data and econometric analysis skills for the workplace (private sector or government). The course will cover data collection, entry management, analysis and presentation. Some Familiarity with computer programming is recommended. Prerequisites: ECON 053; ECON 055; MATH 035 or MATH 037 or MATH 130 or MATH 131 or INTL 101; or permission of instructor. (PLAW)

ECON 171. Political Economy. 4 Units.

This course introduces students to rational choice theory and applies it to the study of elections. The course starts with an analysis of group choice; how small and large groups make decisions and how different voting mechanisms aggregate individual preferences. The rigorous tools learned in the first half of the course are then used to analyze election behavior of political agents; namely voters, political candidates, and interest groups. Voter turnout, political polarization, campaign finance, and presidential elections are among the topics discussed. Prerequisites: ECON 051 or ECON 053.

ECON 173. Strategic Games and Behavior. 4 Units.

This course introduces the concepts and tools of game theory as an analytical framework for understanding strategic interactions and decision-making. The focus is on non-cooperative games with applications to economics as well as other areas. Coverage will include a variety of solution concepts such as Nash equilibrium in pure and mixed strategies, subgame perfect equilibrium and Bayesian equilibrium; simultaneous, sequential, and repeated games; and games with imperfect or asymmetric information. The emphasis of the course will be on the applicability of game theoretic analysis to real-world interactions. In addition, basic concepts of behavioral economics will be introduced and used to understand how and why the equilibria that result in many games are not those that would be predicted by rational choice theory. Prerequisite: ECON 053 or permission of the instructor.

ECON 180. Labor Economics. 4 Units.

This course examines labor's role in the market system and the response of labor and government to market failures. Microeconomic analysis of labor supply and demand, wage and employment determination, and the effects of discrimination are also studied as well as the development of the labor movement from a chronological and theoretical perspective with emphasis on the collective bargaining process. The influence of public policy on labor relations and labor market functioning is also discussed. This course is also listed as a Gender Studies course. Prerequisite: ECON 053. (ETHC)

ECON 183. Health Economics. 4 Units.

This course applies the tools of microeconomics to the study of health care. It provides an analysis of how decisions are made by health care providers, consumers, and third parties responsible for payments (e.g. health insurers). The course is built around individuals' demand for health care and the supply of services by doctors and hospitals. Topics covered include health insurance, managed care and industry competitions, the pharmaceutical industry, the role of the government as a provider of care, long-term care, international health comparisons, and cost-benefit analysis/cost-effectiveness analysis. Prerequisite: ECON 051 or ECON 053.

ECON 187. Internship. 1-4 Units.**ECON 190. Econometrics. 4 Units.**

Students study the methods used to test economic theory with real-world data. The course presents the theory underlying common econometric methods and gives students experience in applying these analytical tools to data from a variety of sources. Students learn to develop testable hypotheses based on economic theories they have learned in earlier courses and to make reliable statistical inferences about these hypotheses. Students gain a working, applicable knowledge of the skills and software used by many professional economists and sought by many employers. Prerequisites: ECON 053; ECON 055; MATH 35 or MATH 037 or MATH 130 or MATH 131 or INTL 101. (PLAW)

ECON 191. Independent Study. 2-4 Units.**ECON 193. Special Topics. 1-4 Units.****ECON 197. Independent Research. 1-4 Units.****ECON 197D. Independent Research. 1-4 Units.****ECON 198. Professional Development Seminar. 1 Unit.**

This is a career readiness class designed to equip students with essential skills to succeed in a competitive job market. Through a combination of alumni talks and practical exercises, students will explore aspects of professional development, effective communication, resume writing, networking strategies, and career planning. Students will learn how to articulate their skills and experiences, develop a professional online presence, and how to up-skill to reach your career goals. Junior or senior class standing.

ECON 199. Economic Analysis Capstone. 3 Units.

This course is designed for Senior-level economics majors and minors to apply what they have learned about economic theory and tools of analysis to the types of problems and issues they may be required to address as practicing economists or in any other capacity their chosen career requires. Students will conduct research, review literature, analyze data and evaluate solutions for real-world economic policy questions. Prerequisites: ECON 101; ECON 103; MATH 037 or MATH 039 or INTL 101; Senior Standing.