

# BACHELOR OF SCIENCE WITH A MAJOR IN ECONOMICS (STEM)

Economics is a versatile major where students develop analytical and quantitative abilities while learning about the functionality of the economy. Students in GW's economics program investigate the consequences of scarcity, which forces people, organizations, and governments to choose among competing objectives. They also learn how to understand the workings of markets and how prices are determined. GW's Department of Economics is a community of teachers and researchers in which students learn and work alongside experts in macroeconomics, microeconomics, labor economics, the economics of industry, international finance, international trade and development, money and banking, the economics of government and public policy, and econometrics. Outside the classroom, GW's location provides unparalleled access to economic institutions like the World Bank, International Monetary Fund, Federal Reserve, Federal Trade Commission, and Department of Labor.

This is a STEM designated program.

Visit the program website (<https://economics.columbian.gwu.edu/>) for additional information.

## ADMISSIONS

For information about the admission process, including deadlines, visit the Office of Undergraduate Admissions website (<https://undergraduate.admissions.gwu.edu/>). Applications can be submitted via the Common Application (<https://go.gwu.edu/commonapp/>).

Supporting documents not submitted online should be mailed to:

Office of Undergraduate Admissions  
The George Washington University  
800 21st St NW Suite 100  
Washington, DC 20052

For questions visit [undergraduate.admissions.gwu.edu/contact-us](https://undergraduate.admissions.gwu.edu/contact-us) (<http://undergraduate.admissions.gwu.edu/contact-us/>).

## REQUIREMENTS

The following requirements must be fulfilled:

The general requirements stated under Columbian College of Arts and Sciences, Undergraduate Programs (<https://bulletin.gwu.edu/arts-sciences/#degreeregulationstext>) and the following curricular requirements.

Program-specific curriculum:

Code	Title	Credits
<b>Required core courses</b>		
ECON 1011	Principles of Economics I <sup>1</sup>	

ECON 1012	Principles of Economics II <sup>1</sup>
ECON 2103	Intermediate Microeconomic Theory: A Mathematical Approach
or ECON 2101	Intermed Microeconomic Theory
ECON 2104	Intermediate Macroeconomic Theory: A Mathematical Approach
or ECON 2102	Intermediate Macroeconomic Theory
ECON 2123	Introduction to Econometrics
ECON 4198W	Proseminar in Economics
MATH 1221	Calculus with Precalculus II <sup>2</sup>
or MATH 1231	Single-Variable Calculus I
MATH 1232	Single-Variable Calculus II <sup>2</sup>
STAT 1111	Business and Economic Statistics I (or equivalent) <sup>2</sup>
or STAT 1051	Introduction to Business and Economic Statistics
or STAT 1053	Introduction to Statistics in Social Science

### STEM electives

Two courses (6 credits) selected from the following and completed with a minimum grade of C-:

CSCI 1011	Introduction to Programming with Java
CSCI 1012	Introduction to Programming with Python
CSCI 1111	Introduction to Software Development
CSCI 1112	Algorithms and Data Structures
CSCI 1311	Discrete Structures I
EMSE 2705	Mathematics of Operations Research
EMSE 3850	Quantitative Models in Systems Engineering
EMSE 4701	Optimization in Operations Research
EMSE 4710	Applied Optimization Modeling
MATH 2184	Linear Algebra I
MATH 2233	Multivariable Calculus <sup>3</sup>
MATH 2971	Introduction to Mathematical Reasoning <sup>3</sup>
MATH 3342	Ordinary Differential Equations <sup>3</sup>
MATH 3410	Mathematics of Finance <sup>3</sup>

MATH 4239	Real Analysis I <sup>3</sup>
STAT 1129	Introduction to Computing
STAT 2183	Intermediate Statistics Lab/Packages
STAT 3119	Design and Analysis of Experiments
STAT 3187	Introduction to Sampling
STAT 4157	Introduction to Mathematical Statistics I
STAT 4158	Introduction to Mathematical Statistics II
STAT 4181	Applied Time Series Analysis
STAT 4188	Nonparametric Statistics Inference
STAT 4189	Mathematical Probability and Applications I
STAT 4190	Mathematical Probability and Applications II
STAT 4197	Fundamentals of SAS Programming for Data Management

#### Additional requirements

Five ECON courses (15 credits) numbered between 2000 and 4999 are required. At least one of these courses should be numbered between 3000 and 3999. The following guidelines and restrictions apply to this requirement:

FINA 3101 and/or FINA 3301 may be used as substitutes for up to two ECON elective courses numbered between 2000 and 4999. Credit may not be earned for both FINA 3301 and ECON 2121.

ECON 3098, ECON 3099, FINA 3101, and FINA 3301 are not considered 3000-level ECON electives and therefore do not fulfill the requirement for one 3-credit ECON course numbered from 3000 to 3999.

No more than three of the following courses can be taken to fulfill this requirement: ECON 2169, ECON 2198, ECON 3098, and ECON 3198.

No more than two of the following courses can be used to fulfill this requirement: ECON 2180, ECON 2181, and ECON 2182. ECON 2180 does not satisfy the major elective requirement if taken concurrently with or after successful completion of ECON 2181 or ECON 2182.

<sup>1</sup> Post-matriculation residency requirement: For ECON 1011 and ECON 1012 to count toward the major it must be completed at GW with a minimum grade of C-. Students who matriculate with AP or transfer credit for ECON 1011 and/or ECON 1012 are exempt from this residency requirement for the relevant course(s).

<sup>2</sup> The MATH course selected from MATH 1221 or MATH 1231, as well as MATH 1232, must be completed with a minimum grade

of C-. The STAT course selected from STAT 1051, STAT 1053, or STAT 1111 must be completed with a minimum grade of C-.

<sup>3</sup> MATH 2233, MATH 2971, MATH 3342, MATH 3410, and MATH 4239 are strongly recommended for students planning to pursue graduate studies in economics.

## GENERAL EDUCATION

In addition to the University General Education Requirement (<https://bulletin.gwu.edu/university-regulations/general-education/>), undergraduate students in Columbian College must complete a further, College-specific general education curriculum—Perspective, Analysis, Communication (G-PAC) (<https://bulletin.gwu.edu/arts-sciences/gpac/>) as well as the course CCAS 1001 First-Year Experience. Together with the University General Education Requirement, G-PAC engages students in active intellectual inquiry across the liberal arts. Students achieve a set of learning outcomes that enhance their analytical skills, develop their communication competencies, and invite them to participate as responsible citizens who are attentive to issues of culture, diversity, and privilege.

Coursework (<https://bulletin.gwu.edu/university-regulations/general-education/#generaleducationtext>) **for the University General Education Requirement is distributed as follows:**

- One course in critical thinking in the humanities.
- Two courses in critical thinking, quantitative reasoning, or scientific reasoning in the social sciences.
- One course that has an approved oral communication component.
- One course in quantitative reasoning (must be in mathematics or statistics).
- One course in scientific reasoning (must be in natural and/or physical laboratory sciences).
- UW 1020 (<https://bulletin.gwu.edu/search/?P=UW%201020>) University Writing (4 credits).
- After successful completion of UW 1020, 6 credits distributed over at least two writing in the discipline (WID) courses taken in separate semesters. WID courses are designated by a "W" appended to the course number.

**Coursework for the CCAS G-PAC requirement is distributed as follows:**

- Arts—one approved arts course that involves the study or creation of artwork based on an understanding or interpretation of artistic traditions or knowledge of art in a contemporary context.
- Global or cross-cultural perspective—one approved course that analyzes the ways in which institutions, practices, and problems transcend national and regional boundaries.
- Local or civic engagement—one approved course that develops the values, ethics, disciplines, and commitment to pursue responsible public action.

- Natural or physical science—one additional approved laboratory course that employs the process of scientific inquiry (in addition to the one course in this category required by the University General Education Requirement).
- Humanities—one additional approved humanities course that involves critical thinking skills (in addition to the one course in this category required by the University General Education Requirement).
- CCAS 1001 First-Year Experience

**Certain courses are approved to fulfill GPAC requirements in more than one category.**

Courses taken in fulfillment of G-PAC requirements may also be counted toward majors or minors. Transfer courses taken prior to, but not after, admission to George Washington University may count toward the University General Education Requirement and G-PAC, if those transfer courses are equivalent to GW courses that have been approved by the University and the College.

Lists of approved courses in the above categories are included on each undergraduate major's (<https://bulletin.gwu.edu/arts-sciences/#majorstext>) page in this Bulletin.

## SPECIAL HONORS

In addition to meeting general requirements stated under University Regulations, to be considered for graduation with Special Honors in Economics, students must have taken at least six graded GWU ECON courses (18 credits) prior to the graduation semester; have a minimum ECON GPA of 3.80 (calculated using all ECON courses completed at GWU prior to the graduation semester); submit a completed application for special honors to the ECON Department at the beginning of their graduation semester.

A student may also be considered for Special Honors in Economics if their proseminar research paper nominated for departmental prizes.

## COMBINED PROGRAM

### Combined program

- Dual Bachelor of Arts or Bachelor of Science with a major in economics and Master of Public Policy (<https://bulletin.gwu.edu/arts-sciences/economics/combined-ba-or-bs-and-mpp/>)