Economics

Department Website: http://economics.uchicago.edu

Program of Study

The program in economics is intended to equip students with the basic tools to understand the operation of a modern economy: the origin and role of prices and markets, the allocation of goods and services, and the factors that enter into the determination of income, employment, and the price level. The specialization in data science provides training in computation and data analysis beyond the basic methods discussed in the empirical methods sequence. The specialization in business economics is organized around the fundamental economic theory and empirical methods that students interested in pursuing careers in the private sector, the non-profit sector, and the public sector (among others) will find useful in carrying out their day-to-day tasks.

BA in Economics, Tracks A and B

The program in economics can be divided into five component parts:

1. **Fundamentals**: provides students with the basic skills required to be successful in the major.
2. **Core curriculum**: consists of three courses designed to introduce students to the "economic approach."
3. **Empirical Methods sequence**: provides students with the fundamental techniques of data analysis.
4. **Economic Policy course**: applies the tools developed in the core curriculum to issues of fiscal policy, monetary policy, and other policy discussions relevant to the current state of the economy.
5. **Electives**: allows students to tailor the economics major to their interests.

Note: The requirements described below apply to students who matriculated at the University of Chicago in the 2016–17 academic year or later. Any possible exceptions will be noted.

Program Requirements, Tracks A and B

**Fundamentals**

Students must begin the economics major by demonstrating competence in basic calculus and principles of economics. The fundamentals sequence consists of the following courses. The first two are required; the second two are strongly recommended:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13300</td>
<td>Elementary Functions and Calculus III</td>
<td>100</td>
</tr>
<tr>
<td>or MATH 15300</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>or MATH 16300</td>
<td>Honors Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 19520</td>
<td>Mathematical Methods for Social Sciences</td>
<td>100</td>
</tr>
<tr>
<td>or MATH 20400</td>
<td>Analysis in Rn II</td>
<td></td>
</tr>
<tr>
<td>or MATH 20800</td>
<td>Honors Analysis in Rn II</td>
<td></td>
</tr>
<tr>
<td>ECON 10000</td>
<td>Principles of Microeconomics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 19800</td>
<td>Introduction to Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 10200</td>
<td>Principles of Macroeconomics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 19900</td>
<td>Intro To Macroeconomics</td>
<td></td>
</tr>
</tbody>
</table>

Students who wish to complete the major with more rigorous mathematics may substitute MATH 20400 Analysis in Rn II for MATH 19520 Mathematical Methods for Social Sciences.

**Calculus**

Students who have an interest in the major should take calculus at the highest level for which they qualify. Students may complete MATH 19520 Mathematical Methods for Social Sciences prior to or concurrently with ECON 20000 The Elements of Economic Analysis I. Students must not postpone completion of MATH 19520 Mathematical Methods for Social Sciences beyond concurrent registration with ECON 20000 The Elements of Economic Analysis I.

1. **MATH 13300s**: Students must complete MATH 13300 Elementary Functions and Calculus III prior to enrolling in ECON 20000 The Elements of Economic Analysis I. Students may find it useful to complete MATH 19520 Mathematical Methods for Social Sciences prior to enrolling in the Elements of Economic Analysis sequence.

2. **MATH 15000s**: Students enrolling in the MATH 15000s sequence must complete MATH 15300 Calculus III before enrolling in ECON 20000 The Elements of Economic Analysis I.

3. **MATH 16000s and 16010s**: Students enrolling in the MATH 16000s sequences must complete MATH 16200 Honors Calculus II or MATH 16210 Honors Calculus II (IBL) before enrolling in ECON 20000 The Elements of Economic Analysis I. Enrollment in ECON 20000 The Elements of Economic Analysis I requires completion or concurrent enrollment in MATH 16300 Honors Calculus III/MATH 16310 Honors Calculus III (IBL) and demonstrated competency in Microeconomics (see Core Curriculum for details).
Students may satisfy the third quarter of calculus requirement by placement (based on the Higher-Level Math Test administered by the College prior to Orientation). In this case, students should continue their mathematics training with the highest mathematics level for which they qualify.

**Principles of Economics**

Students are expected to begin their study of economics with ECON 10000 Principles of Microeconomics (formerly ECON 19800 Introduction to Microeconomics) and ECON 10200 Principles of Macroeconomics (formerly ECON 19900 Intro To Macroeconomics). These courses provide a good overview of basic concepts. These two introductory courses are designed for students with limited or no prior course work in economics. While these two courses provide basic economics knowledge, they are not required in the major. Students who matriculated at the University of Chicago in 2016–17 or later may use ECON 19900 Intro To Macroeconomics or ECON 10200 Principles of Macroeconomics to fulfill one of the economics elective requirements.

Students may not receive credit for both ECON 10000 Principles of Microeconomics and ECON 19800 Introduction to Microeconomics. Likewise, students may not receive credit for both ECON 10200 Principles of Macroeconomics and ECON 19900 Intro To Macroeconomics.

Students are strongly encouraged to complete ECON 10200 Principles of Macroeconomics or ECON 19800 Introduction to Microeconomics prior to ECON 20000 The Elements of Economic Analysis I (or ECON 20100 The Elements of Economic Analysis I Honors) and ECON 10200 Principles of Macroeconomics or ECON 19900 Intro To Macroeconomics prior to ECON 20200 The Elements of Economic Analysis III (or ECON 20210 The Elements of Economic Analysis III Honors).

**Core Curriculum**

The core curriculum consists of three courses. Students may use the standard or honors sequence to satisfy this requirement. The honors sequence is designed for students interested in economics research and/or use of more sophisticated mathematical models.

<table>
<thead>
<tr>
<th>Standard Core Sequence</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20000</td>
<td>The Elements of Economic Analysis I</td>
</tr>
<tr>
<td>ECON 20100</td>
<td>The Elements of Economic Analysis II</td>
</tr>
<tr>
<td>ECON 20200</td>
<td>The Elements of Economic Analysis III</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>or Honors Core Sequence</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20010</td>
<td>The Elements of Economic Analysis I Honors</td>
</tr>
<tr>
<td>ECON 20110</td>
<td>The Elements of Economic Analysis II Honors</td>
</tr>
<tr>
<td>ECON 20210</td>
<td>The Elements of Economic Analysis III Honors</td>
</tr>
</tbody>
</table>

Most students begin the core curriculum in their second year. Those who wish to begin it during their first year must demonstrate competence with the fundamental skills needed in that sequence in the following ways:

- Students must either pass the economics placement test or complete ECON 10000 Principles of Microeconomics/ECON 19800 Introduction to Microeconomics prior to starting ECON 20000 The Elements of Economic Analysis I (or ECON 20100 The Elements of Economic Analysis II). No standardized external exams (IB, AP, nor A-Levels) will substitute, and they rarely serve as sufficient preparation for the economics placement test. Note that the placement test will only be offered Monday evening of the first week of Autumn Quarter.
- Students must satisfy the calculus requirement as discussed in Calculus.

*Note: Students who are completing the previous major requirements and are on track to complete ECON 20300 Elements of Economic Analysis IV after Autumn Quarter 2017 should take ECON 23950 Economic Policy Analysis in place of ECON 20300, regardless of matriculation date.*

**Empirical Methods**

In the modern economy, quantitative methods are highly valued skills. Students must satisfy the empirical methods component of the economics major in one of two ways, either as a three-quarter sequence or a two-quarter sequence. *Note: The two-quarter sequence is only available to students who matriculated in 2016–17 or later. Those who matriculated in 2015–16 or earlier are required to take the standard three-quarter sequence.*

**Option A:** The three-quarter empirical methods sequence is comprised of a course in linear algebra, a course in statistics, and a course in econometrics, and is designed for students who complete the MATH 15000s sequence or higher. This three-quarter empirical methods sequence covers the broad ranges of scope that the disciplines provide, which will be useful for further quantitative training in the major.

**Option B:** The two-quarter empirical sequence, comprised of an economics statistical methods course and a course in econometrics, is provided as an alternative for students who want to focus only on the relevant materials in linear algebra and statistics that pertain to econometrics. ECON 21010 Statistical Methods in Economics teaches the fundamental methods and materials from linear algebra and statistics that are utilized in many economic applications.
Details about each sequence are below. We strongly encourage students to choose the highest mathematical tracks for which they are qualified. Students unsure of which sequence to choose should consult with the Undergraduate Office in the Department of Economics as well as the Department of Mathematics and Department of Statistics.

**Option A: Three-Quarter Empirical Methods Sequence**

In order to satisfy the empirical methods component of the economics major using a three-quarter sequence, students must complete the following courses. They must be taken in consecutive quarters, beginning with Linear Algebra and concluding with Econometrics:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 19620</td>
<td>Linear Algebra</td>
<td>100</td>
</tr>
<tr>
<td>or STAT 24300</td>
<td>Numerical Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 20250</td>
<td>Abstract Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 20700</td>
<td>Honors Analysis in Rn I</td>
<td></td>
</tr>
<tr>
<td>STAT 23400</td>
<td>Statistical Models and Methods</td>
<td>100</td>
</tr>
<tr>
<td>or STAT 24400</td>
<td>Statistical Theory and Methods I</td>
<td></td>
</tr>
<tr>
<td>or STAT 24410</td>
<td>Statistical Theory and Methods Ia</td>
<td></td>
</tr>
<tr>
<td>ECON 21020</td>
<td>Econometrics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 21030</td>
<td>Econometrics - Honors</td>
<td></td>
</tr>
</tbody>
</table>

Total Units: 300

Students may not use AP Statistics credit to satisfy the statistics requirement. Students with AP credit will need to expand on their training with STAT 23400 Statistical Models and Methods, STAT 24400 Statistical Theory and Methods I, or STAT 24410 Statistical Theory and Methods Ia. Students may not earn credit for both STAT 22000 Statistical Methods and Applications (via course enrollment or AP exam) and STAT 23400 Statistical Models and Methods.

Students who wish to pursue more advanced training in empirical methods may complete STAT 24300 Numerical Linear Algebra or MATH 20250 Abstract Linear Algebra or MATH 20700 Honors Analysis in Rn I; either STAT 24400 Statistical Theory and Methods I or STAT 24410 Statistical Theory and Methods Ia; and ECON 21030 Econometrics - Honors.

**Option B: Two-Quarter Empirical Methods Sequence**

Option B is available only to students who matriculated at the University of Chicago in 2016–17 and later. In order to satisfy the empirical methods component of the economics major using a two-quarter sequence, students must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 21010</td>
<td>Statistical Methods in Economics</td>
<td>100</td>
</tr>
<tr>
<td>ECON 21020</td>
<td>Econometrics</td>
<td>100</td>
</tr>
</tbody>
</table>

Total Units: 200

Students should not begin the empirical methods sequence earlier than concurrently with ECON 20100 The Elements of Economic Analysis II and should take ECON 21010 Statistical Methods in Economics and ECON 21020 Econometrics in consecutive quarters. Students must complete the empirical methods sequence by the end of third year.

Students with credit for both MATH 19620 Linear Algebra and STAT 23400 Statistical Models and Methods (or more advanced equivalents) may not also earn credit for ECON 21010 Statistical Methods in Economics.

Students who complete the empirical methods component of the major with just two courses (ECON 21010 Statistical Methods in Economics and ECON 21020 Econometrics) must complete an additional economics elective, as discussed in Electives.

**Economic Policy**

The economic policy requirement provides students the opportunity to apply methods and tools taught in the economics core sequence to analyze current issues centered around monetary and fiscal policy. Most students will complete the economic policy requirement with ECON 23950 Economic Policy Analysis, but students interested in learning more formal approaches may use one of the other macroeconomics courses listed below to satisfy the requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 23950</td>
<td>Economic Policy Analysis</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 23200</td>
<td>Topics in Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>or ECON 23220</td>
<td>Introduction to Advanced Macroeconomic Analysis</td>
<td></td>
</tr>
<tr>
<td>or ECON 23330</td>
<td>Introduction to Dynamic Economic Modeling</td>
<td></td>
</tr>
</tbody>
</table>
Students who complete more than one of the above courses may apply the additional courses to satisfy the economics elective requirements. ECON 23950 Economic Policy Analysis may not count as an economics elective. Students may not earn credit for both ECON 20200 The Elements of Economic Analysis III and ECON 20300 Elements of Economic Analysis IV.

Note: Students on track to complete ECON 20300 Elements of Economic Analysis IV after Autumn Quarter 2017 should take ECON 23950 Economic Policy Analysis in place of ECON 20300, regardless of matriculation date.

Electives

All students in the economics major must complete a minimum of four additional economics courses to broaden their exposure to areas of applied economics or economic theory. Students who complete the empirical methods component with the two-quarter sequence must complete five economics electives. These courses must have a higher course number than ECON 20200 The Elements of Economic Analysis III, with a couple of exceptions: Neither ECON 21010 Statistical Methods in Economics nor ECON 21030 Econometrics - Honors nor ECON 23950 Economic Policy Analysis can be used to satisfy the economics elective requirements; students who matriculated in 2016–17 or later may use ECON 10200 Principles of Macroeconomics OR ECON 19900 Intro To Macroeconomics to satisfy one of the economics elective requirements.

Students may use one course (pre-approved or approved by petition) outside of the University of Chicago Department of Economics to satisfy their elective requirements. Students may apply only one of the following two exceptions to this rule:

Exception (A): Students who participate in a College-sponsored Study Abroad program may petition to count an additional outside course completed at the host institution to satisfy elective requirements of the major.

Exception (B): Students may count an additional outside course to satisfy elective requirements of the major as long as it is drawn from the list of the pre-approved electives.

These rules imply that at most two courses completed outside the University of Chicago Department of Economics may be used to satisfy the elective requirements of the major. For example, if a student completes two courses as part of a College-sponsored Study Abroad program, then the student has fulfilled the outside electives two-course maximum and must complete the remaining elective requirements in the Department of Economics.

The following are pre-approved outside electives:

**Computer Science (only one may be used)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMSC 10600</td>
<td>Fundamentals Of Programming-2</td>
</tr>
<tr>
<td>or CMSC 12100</td>
<td>Computer Science with Applications I</td>
</tr>
<tr>
<td>or CMSC 15100</td>
<td>Intro To Computer Science-1</td>
</tr>
<tr>
<td>or CMSC 16100</td>
<td>Honors Introduction to Computer Science I</td>
</tr>
</tbody>
</table>

**Statistics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 24500</td>
<td>Statistical Theory and Methods II</td>
</tr>
<tr>
<td>STAT 25100</td>
<td>Introduction to Mathematical Probability</td>
</tr>
<tr>
<td>STAT 25300</td>
<td>Introduction to Probability Models</td>
</tr>
<tr>
<td>STAT 26100</td>
<td>Time Dependent Data</td>
</tr>
</tbody>
</table>

**Mathematics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 20500</td>
<td>Analysis in Rn III</td>
</tr>
<tr>
<td>MATH 20900</td>
<td>Honors Analysis in Rn III</td>
</tr>
<tr>
<td>MATH 27300</td>
<td>Basic Theory of Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

**University of Chicago Booth School of Business**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSN 20410</td>
<td>Corporation Finance</td>
</tr>
<tr>
<td>or BUSN 35200</td>
<td>Corporation Finance</td>
</tr>
<tr>
<td>BUSN 37105</td>
<td>Data Science for Marketing Decision Making</td>
</tr>
<tr>
<td>or BUSN 20620</td>
<td>Data Science for Marketing</td>
</tr>
<tr>
<td>BUSN 38120</td>
<td>The Study of Behavioral Economics</td>
</tr>
<tr>
<td>or BUSN 20710</td>
<td>Behavioral Economics</td>
</tr>
<tr>
<td>BUSN 41201</td>
<td>Big Data</td>
</tr>
<tr>
<td>or BUSN 20800</td>
<td>Big Data</td>
</tr>
<tr>
<td>BUSN 41203</td>
<td>Financial Econometrics</td>
</tr>
<tr>
<td>or BUSN 20820</td>
<td>Financial Econometrics</td>
</tr>
<tr>
<td>BUSN 41204</td>
<td>Machine Learning</td>
</tr>
<tr>
<td>or BUSN 20810</td>
<td>Machine Learning</td>
</tr>
</tbody>
</table>
BUSN 42001   Competitive Strategy  
or  BUSN 20900   Competitive Strategy

* BUSN 20000-level (undergraduate-only) versions of these courses will follow some College policies regarding registration, scheduling, grading, etc. The BUSN 30000-level versions will be subject to Chicago Booth's academic and administrative policies. Consult the Booth website (https://www.chicagobooth.edu/programs/taking-courses-at-booth) for details.

Courses in other degree programs may be considered for elective credit through petition. To be considered, these courses must require the equivalent prerequisite course work of ECON 20100 The Elements of Economic Analysis II. Graduate level economics courses will be counted for elective credit, but consultation with the Undergraduate Office in advance of course registration is required.

Summary of Requirements

For summaries of requirements for the BA in economics (Tracks A and B), see below.

Sample Programs for Tracks A and B

The following is a recommended sample plan of study (excluding four elective courses) for those students entering with the MATH 13000s sequence:

<table>
<thead>
<tr>
<th>First Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13100</td>
<td></td>
<td>MATH 13200</td>
<td>MATH 13500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ECON 10000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20000</td>
<td></td>
<td>ECON 20100</td>
<td>ECON 20200</td>
</tr>
<tr>
<td>MATH 19520</td>
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<td>ECON 10200</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 23950</td>
<td></td>
<td>STAT 23400</td>
<td>ECON 21020</td>
</tr>
<tr>
<td>MATH 19620</td>
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</tbody>
</table>

The following is a recommended plan of study (excluding four economics elective courses) for those students entering with the MATH 15000s or MATH 16000s sequence:

<table>
<thead>
<tr>
<th>First Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 15100</td>
<td></td>
<td>MATH 15200</td>
<td>MATH 15500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ECON 10000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20000</td>
<td></td>
<td>ECON 20100</td>
<td>ECON 20200</td>
</tr>
<tr>
<td>MATH 19520</td>
<td></td>
<td>MATH 19620</td>
<td>STAT 23400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ECON 10200</td>
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</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Autumn Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 23950</td>
<td></td>
</tr>
<tr>
<td>ECON 21020</td>
<td></td>
</tr>
</tbody>
</table>

The following is a recommended plan of study (excluding five elective courses) for those students completing the two-quarter empirical methods sequence. Note that this plan of study can be used in conjunction with any calculus sequence:

<table>
<thead>
<tr>
<th>First Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13100</td>
<td></td>
<td>MATH 13200</td>
<td>MATH 13500</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>ECON 10000</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20000</td>
<td></td>
<td>ECON 20100</td>
<td>ECON 20200</td>
</tr>
<tr>
<td>MATH 19520</td>
<td></td>
<td>ECON 10200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 23950</td>
<td></td>
<td>ECON 21020</td>
</tr>
<tr>
<td>ECON 21010</td>
<td></td>
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</tr>
</tbody>
</table>

Students wanting to appropriately plan their economics major with the courses MATH 20400 Analysis in Rn II, STAT 24400 Statistical Theory and Methods I, or STAT 24410 Statistical Theory and Methods Ia should consult with the Undergraduate Program Office in the Department of Economics.
BA in Economics with Specialization in Business Economics

The specialization in business economics is organized around the fundamental economic theory and empirical methods that students interested in pursuing careers in the private sector, the non-profit sector, and the public sector (among others) will find useful in carrying out their day-to-day tasks. Students who begin by following the standard economics major path have several decision points at which they can choose to specialize in business economics. Students should consult early in the first year with the Department of Economics Undergraduate Program to design a curriculum that satisfies their professional goals.

Students pursuing the Economics major must complete a Calculus sequence. However, it is not required for the Specialization in Business Economics. Students are still strongly urged to take Calculus to ensure sufficient quantitative understanding and competence.

Note that BUSN 2XXXX-level (College-level) versions of courses offered by the University of Chicago Booth School of Business (Chicago Booth) will follow some College policies regarding registration, scheduling, grading, etc. Consult the Chicago Booth website (https://www.chicagobooth.edu/programs/taking-courses-at-booth/faq/#beecf17b3e30f4f59c27d6) for details. Booth's BUSN 3XXXX-level and higher courses will be subject to Chicago Booth's academic and administrative policies.

Early final grades will be given for graduating students in BUSN 2XXXX-level courses. The Booth Registrar's Office will coordinate with instructors to issue early final grades for graduating students in College-level Booth courses.

Note: Early final grades are not given for MBA-level courses (3XXXX and above). These courses should not be taken in the student's graduating quarter unless the student will have completed all graduation requirements, irrespective of the BUSN 2XXXX-level course.

As with the standard economics program, this specialization is divided into five component parts:

1. **Core**: The core component is designed to introduce students to the tools of basic economic analysis. These courses include fundamental course work in microeconomics, macroeconomics, and business education.

2. **Methods**: The methods component is designed to introduce students to the different toolkits on which economists rely to analyze problems in both microeconomics and macroeconomics.

3. **Empirical Analysis**: The empirical analysis component provides students with the fundamental techniques of data analysis. These courses emphasize the application of empirical methods to relevant examples and develop the essential computer skills students need to lead successful careers.

4. **Perspectives**: The perspectives requirement recognizes that successful careers require broad-based understanding of the markets and industries in which our potential majors are likely to participate. This requirement is intended to facilitate both the acquisition of sector-specific knowledge and/or job-specific skills that are likely to provide context for the student's economics and business training.

5. **Electives**: Electives from the University of Chicago Booth School of Business and the Department of Economics allow students to tailor the program to their interests.

### Core

The core component is designed to introduce students to the tools of basic economic analysis. These courses include fundamental course work in microeconomics and macroeconomics. They courses introduce theory but emphasize the application of these tools to standard problems that students are likely to encounter as they carry out their professional activities. The core component consists of three courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 10000</td>
<td>Principles of Microeconomics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 20000</td>
<td>The Elements of Economic Analysis I</td>
<td></td>
</tr>
<tr>
<td>ECON 10200</td>
<td>Principles of Macroeconomics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 20200</td>
<td>The Elements of Economic Analysis III</td>
<td></td>
</tr>
</tbody>
</table>

One Foundations of Business Education course, chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSN 20100</td>
<td>Financial Accounting</td>
</tr>
<tr>
<td>BUSN 20330</td>
<td>Building the New Venture</td>
</tr>
<tr>
<td>BUSN 20400</td>
<td>Investments</td>
</tr>
<tr>
<td>BUSN 20410</td>
<td>Corporation Finance</td>
</tr>
<tr>
<td>BUSN 20702</td>
<td>Managerial Decision Making</td>
</tr>
<tr>
<td>BUSN 20600</td>
<td>Marketing Management</td>
</tr>
<tr>
<td>BUSN 20500</td>
<td>Operations Management</td>
</tr>
<tr>
<td>BUSN 20800</td>
<td>Big Data</td>
</tr>
<tr>
<td>BUSN 20900</td>
<td>Competitive Strategy</td>
</tr>
</tbody>
</table>

Total Units 300
Students who have previously completed ECON 19800 (but not ECON 20000) will have satisfied this requirement.

Students who have previously completed ECON 19900 (but not ECON 20200) will have satisfied this requirement.

BUSN 2XXXX-level (undergraduate-level) versions of these courses will follow some College policies regarding registration, scheduling, grading, etc. The BUSN 3XXXX-level and higher versions will be subject to Chicago Booth's academic and administrative policies. Consult the Chicago Booth website for details. Students who have taken a BUSN 2XXXX-level course cannot enroll in the 3XXXX-level or higher equivalent course and vice-versa.

Methods

The methods component of the major is designed to expose students to the different toolkits on which economists rely to analyze problems. These methods courses include offerings in basic price theory, game theory, and experimental methods. This component also includes course work that will be useful in macroeconomic and financial analysis. Students must complete one microeconomic methods course and one macroeconomic methods course from the lists below:

One Microeconomic Methods course, chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 20100</td>
<td>The Elements of Economic Analysis II</td>
</tr>
<tr>
<td>ECON 20700</td>
<td>Game Theory and Economic Applications</td>
</tr>
<tr>
<td>ECON 21800</td>
<td>Experimental Economics</td>
</tr>
</tbody>
</table>

One Macroeconomic Methods course, chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 13000</td>
<td>Introduction to Money and Banking</td>
</tr>
<tr>
<td>ECON 16020</td>
<td>Introduction to Public Sector Economics</td>
</tr>
<tr>
<td>ECON 17100</td>
<td>Introduction to International Trade</td>
</tr>
<tr>
<td>ECON 23950</td>
<td>Economic Policy Analysis</td>
</tr>
</tbody>
</table>

Total Units: 200

Empirical Analysis

The objective of the empirical analysis component is to ensure that students who complete the major are comfortable carrying out data analysis in various forms. This requires that students gain familiarity with basic statistics and basic econometric methods. These courses will emphasize the application of empirical methods to relevant examples and develop essential computer skills.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 21010</td>
<td>Statistical Methods in Economics *</td>
</tr>
<tr>
<td>or STAT 23400</td>
<td>Statistical Models and Methods</td>
</tr>
<tr>
<td>or STAT 24400</td>
<td>Statistical Theory and Methods I</td>
</tr>
<tr>
<td>ECON 11020</td>
<td>Introduction to Econometrics</td>
</tr>
<tr>
<td>or ECON 21020</td>
<td>Econometrics</td>
</tr>
<tr>
<td>or ECON 21030</td>
<td>Econometrics - Honors</td>
</tr>
</tbody>
</table>

Total Units: 200

* For students matriculating in the 2017–18 academic year or earlier, STAT 22000 Statistical Methods and Applications may also be used as a substitute for ECON 21010 Statistical Methods in Economics.

Perspectives

The perspectives requirement consists of one course that can come from any division in the University. This requirement recognizes that successful careers require broad-based understanding of the markets and industries in which our potential majors are likely to participate. This requirement is intended to facilitate the acquisition of sector-specific knowledge and/or job-specific skills that are likely to provide context for the economics and business training to which students will receive exposure while completing the specialization business economics. It is expected that students use this perspectives component as a stepping-stone to design a meaningful set of courses that complement their training in business economics.

It is important to emphasize that there are many courses across the University that students can use to satisfy the perspectives requirement. A list of courses pre-approved for this requirement may be found on the departmental website (https://economics.uchicago.edu/content/ ba-economics-specialization-business-economics), but students may petition the Department of Economics to use other suitable courses.

Electives

Students must take five electives to complete the specialization in business economics: three from the University of Chicago Booth School of Business, as defined below, and two from the University of Chicago Department of Economics. A student may, by petition, use a course from outside Chicago Booth and the Department of Economics as, at most, one business economics elective.

A note on professional school courses: The rules of the College allow students to use no more than four courses from professional schools to satisfy degree requirements. The specialization in business economics requires four courses taken at Chicago Booth. If a student successfully petitions to use a course from a professional school
other than Chicago Booth (e.g., the Law School or the Harris School of Public Policy) in the major, then College rules require that the approved course substitute for a Chicago Booth elective. Be aware that undergraduates may enroll in a total of six professional school courses, but the last two courses would be ineligible to satisfy any undergraduate degree requirement.

**Courses in the University of Chicago Booth School of Business**

The courses at Chicago Booth that students can use to meet the electives requirements are categorized in eight different “bundles.” Courses in the table below with an asterisk (*) are also eligible for the Foundations of Business Education requirement; however, a course used to satisfy the core requirement in the major cannot be also counted as an elective. Students must complete four distinct Booth courses: one Foundations in Business Education and three electives. In order to expose students to different subfields in business education, the four Booth courses used to fulfill the core and elective requirements must be drawn from at least three of the thematic bundles listed below.

NOTE: Undergraduate (BUSN 2XXXX-level) numbers are forthcoming for all applicable courses. BUSN 2XXXX-level (undergraduate-level) versions of these courses will follow some College policies regarding registration, scheduling, grading, etc. The BUSN 3XXXX-level and above versions will be subject to Chicago Booth’s academic and administrative policies. Consult the Chicago Booth website for details. Students who have taken a BUSN 2XXXX-level course cannot enroll in the 3XXXX-level or higher equivalent, and vice versa.

**CHICAGO BOOTH COURSES THAT MEET THE ELECTIVES REQUIREMENT**

| Accounting          |  |  |
|---------------------|--------------------------|
| BUSN 20100          | Financial Accounting (*)  |
| BUSN 20101          | Managerial Accounting    |
| BUSN 20150          | Financial Statement Analysis |

| Entrepreneurship    |  |  |
|---------------------|--------------------------|
| BUSN 20330          | Building the New Venture (*) |
| BUSN 20340          | Developing a New Venture |
| BUSN 20160          | Accounting for Entrepreneurship |

| Finance             |  |  |
|---------------------|--------------------------|
| BUSN 20410          | Corporation Finance (*)  |
| BUSN 20400          | Investments              |

| Management          |  |  |
|---------------------|--------------------------|
| BUSN 20702          | Managerial Decision Making (*) |
| BUSN 20710          | Behavioral Economics     |
| BUSN 20701          | Managing in Organizations |

| Marketing           |  |  |
|---------------------|--------------------------|
| BUSN 20600          | Marketing Management (*)  |
| BUSN 20610          | Pricing Strategy         |
| BUSN 20620          | Data Science for Marketing |

| Operations          |  |  |
|---------------------|--------------------------|
| BUSN 20500          | Operations Management (*) |
| BUSN 20510          | Managerial Decision Modeling |

| Statistics          |  |  |
|---------------------|--------------------------|
| BUSN 20800          | Big Data (*)              |
| BUSN 20810          | Machine Learning          |
| BUSN 20820          | Financial Econometrics    |

<table>
<thead>
<tr>
<th>Strategy and the Business Environment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSN 20900</td>
<td>Competitive Strategy (*)</td>
<td></td>
</tr>
<tr>
<td>BUSN 20230</td>
<td>International Financial Policy</td>
<td></td>
</tr>
</tbody>
</table>

* These courses are also eligible for the Foundations of Business Education requirement; however, a course used to satisfy the core requirement in the major cannot also be counted as an elective. Students must complete four distinct Chicago Booth courses: one Foundations of Business Education course and three electives. In order to expose students to different subfields in business education, the four Chicago Booth courses used to fulfill the core and elective requirements must be drawn from at least three of the thematic bundles listed here.

Students may further their business education by completing two additional Booth courses, potentially from Booth courses outside of the bundle list below (subject to the discretion of the instructor). However, per College rules, they will not count toward any degree requirements.
**Courses in the Department of Economics**

Students in the specialization in business economics must complete at least two electives in the Department of Economics. These may be ECON courses with numbers between 10200 and 19800, or numbers above 20200, assuming that the student has the appropriate prerequisites for the course. Note that ECON 21010, ECON 21020, ECON 21030, and ECON 23950 are exceptions to this and cannot be used to satisfy the elective requirement for the specialization in business economics.

**Summary of Requirements**

For a summary of requirements for the BA in Economics with Specialization in Business Economics, see below.

**BA in Economics with Specialization in Data Science**

The specialization in data science provides training in computation and data analysis beyond the basic methods discussed in the empirical methods sequence. The specialization in data science and the standard BA in economics share eight courses:

- Two fundamentals courses:
  - MATH 13300 Elementary Functions and Calculus III OR MATH 15300 Calculus III OR MATH 16300 Honors Calculus III
  - MATH 19520 Mathematical Methods for Social Sciences OR MATH 20400 Analysis in Rn II OR MATH 20800 Honors Analysis in Rn II

- One of the following:
  - ECON 20000-20100-20200
    - The Elements of Economic Analysis I-II-III
  - ECON 20010-20110-20210
    - The Elements of Economic Analysis: Honors I-II-III

One three-quarter empirical methods sequence:

- MATH 19620 Linear Algebra (OR STAT 24300 Numerical Linear Algebra OR MATH 20250 Abstract Linear Algebra OR MATH 20700 Honors Analysis in Rn I)
- STAT 23400 Statistical Models and Methods (OR STAT 24400 Statistical Theory and Methods I OR STAT 24410 Statistical Theory and Methods Ia)
- ECON 21020 Econometrics (OR ECON 21030 Econometrics - Honors)

**Total Units** 800

The specialization in data science is designed to begin after completion of the core sequence and the empirical methods sequence. Students pursuing the specialization in data science are not required to complete ECON 23950 Economic Policy Analysis. Instead, they must complete basic training in computer science and at least two data science courses in the Department of Economics:

- One of the following:
  - CMSC 12300 Computer Science with Applications III
  - CMSC 15200 Intro To Computer Science-2
  - CMSC 16200 Honors Introduction to Computer Science II

- Two chosen from:
  - ECON 21300 Data Construction and Interpretation in Economic Applications
  - ECON 21330 Econometrics and Machine Learning
  - ECON 21320 Applications of Econometric and Data Science Methods

**Total Units** 300

Students pursuing the specialization in data science are encouraged to complete all three courses. These economics courses can also be used as electives by student pursuing the standard BA in economics. Descriptions for these courses are forthcoming.

Students pursuing the specialization in data science must also complete two electives drawn from the following sets of courses:

**At most one of:**

- ECON 21110 Applied Microeconometrics
- ECON 21130 Topics in Microeconometrics
- ECON 21150 Topics in Applied Econometrics

**At most one of:**

- ECON 21200 Time Series Econometrics
- STAT 26100 Time Dependent Data

**Total Units** 100
### Descriptions of the data science courses are forthcoming.

**Students who have entered the specialization in data science but no longer wish to pursue it** must complete ECON 23950 Economic Policy Analysis and the necessary electives to satisfy the requirements of the standard BA in economics. All economics courses completed in the pursuit in the specialization in data science will count toward the degree requirements of the BA in economics. These students may also count course work in computer science as the outside elective as discussed in the Electives section.

### Summary of Requirements

For a summary of requirements for the BA in economics with specialization in data science, see below.

#### Summaries of Requirements

- BA in Economics, Track A: Three-Quarter Empirical Methods Sequence
- BA in Economics, Track B: Two-Quarter Empirical Methods Sequence
- BA in Economics with Specialization in Business Economics
- BA in Economics with Specialization in Data Science

#### Summary of Requirements: BA in Economics, Track A: Three-Quarter Empirical Methods Sequence

**GENERAL EDUCATION**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13100-13200</td>
<td>Elementary Functions and Calculus I-II</td>
<td>200</td>
</tr>
<tr>
<td>MATH 15100-15200</td>
<td>Calculus I-II *</td>
<td></td>
</tr>
<tr>
<td>MATH 16100-16200</td>
<td>Honors Calculus I-II</td>
<td></td>
</tr>
<tr>
<td>MATH 16110 &amp; MATH 16210</td>
<td>Honors Calculus I (IBL) and Honors Calculus II (IBL)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Units** 200

**MAJOR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13300</td>
<td>Elementary Functions and Calculus III</td>
<td>100</td>
</tr>
<tr>
<td>MATH 15300</td>
<td>Calculus III *</td>
<td></td>
</tr>
<tr>
<td>MATH 16300</td>
<td>Honors Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 16310</td>
<td>Honors Calculus III (IBL)</td>
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</table>

One of the following: 300

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ECON 20000-20100-20200</td>
<td>The Elements of Economic Analysis I-II-III</td>
<td></td>
</tr>
<tr>
<td>ECON 20010-20110-20210</td>
<td>The Elements of Economic Analysis: Honors I-II-III</td>
<td></td>
</tr>
<tr>
<td>MATH 19520</td>
<td>Mathematical Methods for Social Sciences **</td>
<td>100</td>
</tr>
<tr>
<td>or MATH 20400</td>
<td>Analysis in Rn II</td>
<td></td>
</tr>
<tr>
<td>or MATH 20800</td>
<td>Honors Analysis in Rn II</td>
<td></td>
</tr>
<tr>
<td>MATH 19620</td>
<td>Linear Algebra</td>
<td>100</td>
</tr>
<tr>
<td>or MATH 20250</td>
<td>Abstract Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or STAT 24300</td>
<td>Numerical Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 20700</td>
<td>Honors Analysis in Rn I</td>
<td></td>
</tr>
<tr>
<td>STAT 23400</td>
<td>Statistical Models and Methods</td>
<td>100</td>
</tr>
<tr>
<td>or STAT 24400</td>
<td>Statistical Theory and Methods I</td>
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<tr>
<td>or STAT 24410</td>
<td>Statistical Theory and Methods Ia</td>
<td></td>
</tr>
<tr>
<td>ECON 21020</td>
<td>Econometrics</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 21030</td>
<td>Econometrics - Honors</td>
<td></td>
</tr>
<tr>
<td>ECON 23950</td>
<td>Economic Policy Analysis</td>
<td>100</td>
</tr>
<tr>
<td>or ECON 23200</td>
<td>Topics in Macroeconomics</td>
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</tr>
<tr>
<td>or ECON 23220</td>
<td>Introduction to Advanced Macroeconomic Analysis</td>
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</table>

* Required course

**Notes:**

- * indicates hybrid course
- ** indicates honors course

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**Economics**

<table>
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<tr>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BUSN 41203</td>
<td>Financial Econometrics</td>
<td>100</td>
</tr>
<tr>
<td>ECON 21410</td>
<td>Computational Methods in Economics</td>
<td>100</td>
</tr>
<tr>
<td>ECON 23040</td>
<td>Cryptocurrencies</td>
<td>100</td>
</tr>
<tr>
<td>STAT 27400</td>
<td>Nonparametric Inference</td>
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</tr>
<tr>
<td>STAT 27725</td>
<td>Machine Learning</td>
<td>100</td>
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</table>
or ECON 23330  
Introduction to Dynamic Economic Modeling  

<table>
<thead>
<tr>
<th>Four electives *</th>
<th>400</th>
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</thead>
<tbody>
<tr>
<td>Total Units</td>
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</tr>
</tbody>
</table>

* Credit may be granted by examination.  
** Students are encouraged to take prior to or concurrently with ECON 20000 or ECON 20010.  
+ These courses must include two economics courses numbered higher than ECON 20200 and must follow guidelines in the preceding Electives section. (Note: ECON 19900 or ECON 10200 may be used to fulfill one economics elective requirement for students who matriculated in 2016–17 or later.)

Summary of Requirements: BA in Economics, Track B: Two-Quarter Empirical Methods Sequence  
*Available only to students who matriculated in 2016–17 or later.*

**GENERAL EDUCATION**

<table>
<thead>
<tr>
<th>One of the following:</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13100-13200</td>
<td>Elementary Functions and Calculus I-II</td>
</tr>
<tr>
<td>MATH 15100-15200</td>
<td>Calculus I-II *</td>
</tr>
<tr>
<td>MATH 16100-16200</td>
<td>Honors Calculus I-II</td>
</tr>
<tr>
<td>MATH 16110 &amp; MATH 16210</td>
<td>Honors Calculus I (IBL) and Honors Calculus II (IBL)</td>
</tr>
</tbody>
</table>

| Total Units | 200 |

**MAJOR**

<table>
<thead>
<tr>
<th>One of the following:</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 13300</td>
<td>Elementary Functions and Calculus III</td>
</tr>
<tr>
<td>MATH 15300</td>
<td>Calculus III *</td>
</tr>
<tr>
<td>MATH 16300</td>
<td>Honors Calculus III</td>
</tr>
<tr>
<td>MATH 16310</td>
<td>Honors Calculus III (IBL)</td>
</tr>
<tr>
<td>One of the following:</td>
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</tr>
<tr>
<td>ECON 20000-20100-20200</td>
<td>The Elements of Economic Analysis I-II-III</td>
</tr>
<tr>
<td>ECON 20100-20100-20210</td>
<td>The Elements of Economic Analysis: Honors I-II-III</td>
</tr>
<tr>
<td>MATH 19520 or MATH 20400 or MATH 20800</td>
<td>Mathematical Methods for Social Sciences ** or Analysis in Rn II or Honors Analysis in Rn II</td>
</tr>
<tr>
<td>ECON 21010</td>
<td>Statistical Methods in Economics</td>
</tr>
<tr>
<td>ECON 21020</td>
<td>Econometrics</td>
</tr>
<tr>
<td>ECON 23950 or ECON 23200 or ECON 23220 or ECON 23330</td>
<td>Economic Policy Analysis or Topics in Macroeconomics or Introduction to Advanced Macroeconomic Analysis or Introduction to Dynamic Economic Modeling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Five electives *</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Units</td>
<td>1300</td>
</tr>
</tbody>
</table>

* Credit may be granted by examination.  
** Students are encouraged to take prior to or concurrently with ECON 20000 or ECON 20010.  
+ These courses must include three economics courses numbered higher than ECON 20200 and must follow guidelines in the preceding Electives section. For students who matriculated in 2016–17 or later, ECON 19900 or ECON 102 may be used to fulfill one economics elective requirement.

Summary of Requirements: BA in Economics with Specialization in Business Economics

**MAJOR**

<table>
<thead>
<tr>
<th>ECON 10000 or ECON 20000</th>
<th>Principles of Microeconomics *</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 10200 or ECON 20200</td>
<td>The Elements of Economic Analysis I or The Elements of Economic Analysis III</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>One Foundations of Business Economics course, chosen from:</th>
<th>100</th>
</tr>
</thead>
</table>

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11 Economics
BUSN 20100    Financial Accounting
BUSN 20330    Building the New Venture
BUSN 20400    Investments
BUSN 20410    Corporation Finance
BUSN 38002    Managerial Decision Making
BUSN 37000    Marketing Strategy
BUSN 40000    Operations Management: Business Process Fundamentals
BUSN 41201    Big Data
BUSN 42001    Competitive Strategy
One Microeconomic Methods course, chosen from:  
ECON 20100    The Elements of Economic Analysis II
ECON 20700    Game Theory and Economic Applications
ECON 21800    Experimental Economics
One Macroeconomics Methods course, chosen from:  
ECON 13000    Introduction to Money and Banking
ECON 16020 Introduction to Public Sector Economics
ECON 17100    Introduction to International Trade
ECON 23950    Economic Policy Analysis
ECON 21010    Statistical Methods in Economics *  
or STAT 23400    Statistical Models and Methods
or STAT 24400    Statistical Theory and Methods I
ECON 11020 Introduction to Econometrics  
or ECON 21020 Econometrics
or ECON 21030 - Econometrics - Honors
One Perspectives elective  
Three electives from the University of Chicago Booth School of Business §
Two electives from the Department of Economics  
Total Units  
# Students who have previously completed ECON 19800 but not ECON 20000 will have satisfied this requirement
^ Students who have previously completed ECON 19900 but not ECON 20200 will have satisfied this requirement
* For students matriculating in the 2017–18 academic year or earlier, STAT 22000 Statistical Methods and Applications may also be used as a substitute for ECON 21010 Statistical Methods in Economics.
§ Students must take Chicago Booth courses in at least three thematic “bundles.” See Electives section for details. Note that BUSN 20000-level (undergraduate-only) versions of these courses will follow some College policies regarding registration, scheduling, grading, etc. The BUSN 30000-level versions will be subject to Chicago Booth academic and administrative policies. Consult the Chicago Booth website for details.

Summary of Requirements: BA in Economics with Specialization in Data Science

GENERAL EDUCATION
One of the following:  
MATH 13100-13200    Elementary Functions and Calculus I-II
MATH 15100-15200    Calculus I-II *
MATH 16100-16200    Honors Calculus I-II
MATH 16110 & MATH 16210    Honors Calculus I (IBL) and Honors Calculus II (IBL)
Total Units 200

MAJOR
MATH 13300    Elementary Functions and Calculus III  
or MATH 15300    Calculus III
or MATH 16300    Honors Calculus III
MATH 19520    Mathematical Methods for Social Sciences  
or MATH 20400    Analysis in Rn II
or MATH 20800    Honors Analysis in Rn II
One of the following:  

100

200

300
ECON 20000-20100-20200 The Elements of Economic Analysis I-II-III

ECON 20010-20110-20210 The Elements of Economic Analysis: Honors I-II-III

MATH 19620 Linear Algebra 100
or STAT 24300 Numerical Linear Algebra
or MATH 20250 Abstract Linear Algebra
or MATH 20700 Honors Analysis in Rn I

STAT 23400 Statistical Models and Methods 100
or STAT 24400 Statistical Theory and Methods I
or STAT 24410 Statistical Theory and Methods Ia

ECON 21020 Econometrics 100
or ECON 21030 Econometrics - Honors

CMSC 12300 Computer Science with Applications III 100
or CMSC 15200 Intro To Computer Science-2
or CMSC 16200 Honors Introduction to Computer Science II

Two Data Science courses chosen from:
ECON 21300 Data Construction and Interpretation in Economic Applications
ECON 21330 Econometrics and Machine Learning
ECON 21320 Applications of Econometric and Data Science Methods

Two electives: 200
At most one of: ECON 21110 Applied Microeconomics, ECON 21130 Topics in Microeconomics, ECON 21150 Topics in Applied Econometrics

At most one of: ECON 21200 Time Series Analysis, STAT 26100 Time Dependent Data, BUSN 41203 Financial Econometrics

ECON 21410 Computational Methods in Economics
ECON 23040 Cryptocurrencies
STAT 27400 Nonparametric Inference
STAT 27725 Machine Learning

Total Units 1300

* Credit may be granted by examination.

Grading
Successful completion of the economics major requires both a major GPA of 2.0 or higher and a minimum grade of C– in all courses counted for the major program. In addition, students majoring in economics must receive quality grades in all courses required as part of the major. Non-majors may take economics courses on a P/F basis; only grades of C– or higher constitute passing work.

Honors
To be considered for honors, students must meet the following requirements: (1) a GPA of 3.5 or higher in the major and a GPA of 3.2 or higher overall, (2) participation in the honors workshop and sole authorship of an independent research paper on a topic in economics, and (3) a faculty sponsor’s letter evaluating this independent research paper. For award of honors, the project must receive a grade of A or A–. At the beginning of the student’s fourth year, the economics honors committee must have a letter from an economics faculty sponsor expressing willingness to oversee the student’s writing of an independent research paper and recommending the student be admitted into the honors workshop program. Honors papers should be outgrowths of economics electives or research assistant work for the faculty sponsor.

Participation in the ECON 29800 Undergraduate Honors Workshop is mandatory throughout the year. Upon completion of the paper in the Spring Quarter, the student will then be retroactively registered for the course in the fourth-year quarter of the student’s choosing. Plan for this retroactive registration with your College adviser.

The research paper, a transcript, and a recommendation letter from the faculty sponsor evaluating the independent research paper must be submitted to the undergraduate economics program office for consideration by the economics honors committee no later than the end of fourth week of the quarter in which the student plans to graduate. Students wishing to qualify for honors should (1) engage in preparatory course work in the area of interest no later than Spring Quarter of their third year and (2) consult with the program advisers no later than Winter Quarter of their third year.

This program may accept a BA paper or project used to satisfy the same requirement in another major if certain conditions are met and with the consent of the other program chair. Approval from both program chairs is required. Students should consult with the chairs by the earliest BA proposal deadline (or by the end of third year, when neither
program publishes a deadline). A consent form, to be signed by both chairs, is available from the College adviser. It must be completed and returned to the College adviser by the end of Autumn Quarter of the student's year of graduation.

Preparation for PhD Programs in Economics

Students preparing to pursue a PhD program in economics should complete advanced course work in mathematics, statistics, and computer science. The real analysis sequence offered by the Mathematics Department, MATH 20300-20400-20500 Analysis in Rn I-II-III (or its honors variant MATH 20700-20800-20900 Honors Analysis in Rn I-II-III) contains material that is particularly important for economics graduate school. Students who used MATH 13300 Elementary Functions and Calculus III or MATH 15300 Calculus III to fulfill the calculus requirement will need to take MATH 15910 Introduction to Proofs in Analysis to transition into the real analysis sequence. Completion of this course work allows students to participate in higher level electives that may also be helpful for their chosen path of study in graduate school.

Completion of either STAT 24400 Statistical Theory and Methods I or STAT 24410 Statistical Theory and Methods Ia and either MATH 20250 Abstract Linear Algebra or STAT 24300 Numerical Linear Algebra will allow students to continue their training in statistics and econometrics at an advanced level.

Increasingly, graduate programs expect students to have sophisticated programming skills. Completion of CMSC 15100-15200 Introduction to Computer Science I-II is strongly encouraged.

In addition, students who are interested in pursuing graduate study are encouraged to take appropriate courses from other departments in the social sciences to obtain a well-rounded perspective of their areas of interest.

Students are encouraged to seek research assistant jobs and may self-subscribe to the Research Assistant Jobs (https://lists.uchicago.edu/web/info/chicago_economics-researchasst) listhost to receive updates on job postings.

Provisional and early final grades are not given for economics graduate courses. Economics graduate courses should not be taken in the student’s graduating quarter unless the student will have completed 42 credits, not counting the economics graduate course, and all requirements for all majors."

It is important that such students consult early in the second year with one of the directors of the undergraduate program to design a plan of course work and research. Contact juliew@uchicago.edu for appointments.

Economics Courses

**ECON 10000. Principles of Microeconomics. 100 Units.**
By way of economic theory, applications, and contemporary issues, this course treats (1) the behavior and decision making on the part of individuals, business firms, and governments; and (2) the function of costs, prices, incentives, and markets in the American economy. We discuss contemporary topics (e.g., distribution of income, the environment, education, sports, health care). This course is formerly known as Econ 19800: Introduction to Microeconomics. Students may substitute "Econ 20000: The Elements of Economic Analysis I" for this course in the business economics track.
Instructor(s): A. Sanderson; M. Lee Terms Offered: Autumn Spring Winter

**ECON 10200. Principles of Macroeconomics. 100 Units.**
By way of theory and public policy applications, this course covers current major domestic and international macroeconomic issues in the U.S. economy, including the determination of income and output, inflation, unemployment, and economic growth; money, banking, and the Federal Reserve System; federal spending, taxation, and deficits; and international trade, exchange rates, and the balance of payments. This course is formerly known as Econ 19900: Introduction to Macroeconomics. Students may substitute "Econ 20200: The Elements of Economic Analysis III" for this course in the business economics track.
Instructor(s): A. Sanderson Terms Offered: Spring Winter

**ECON 11020. Introduction to Econometrics. 100 Units.**
The objective of this course is to introduce students to the practice of econometrics. The course will focus on the use of multiple regression as a tool to establish causal relations. The course emphasizes all steps of the process of empirical research: data collection, analysis, and presentation (both written and oral). Multiple examples of this process will be discussed and students will be expected to read and evaluate existing research. Students will apply the techniques discussed in class to a topic of their choosing. They will write a paper and present results to the class.
Instructor(s): Staff Terms Offered: Spring Winter
Prerequisite(s): ECON 10000 and ECON 10200; ECON 21010 or STAT 22000 or STAT 23400 or STAT 24400
ECON 12210. Economic History II: The Early Modern World, circa 1300-1800. 100 Units.
This course both describes preindustrial economic life and weighs the models used to explain fundamental changes to it. We will begin by describing some of the basic structures that determined patterns of production, exchange, and consumption in a period of low and easily reversible growth. These include agricultural productivity, demographic constraints, modes of transportation, and the social structures that governed the distribution of what little surplus premodern societies produced. Turning to the sources of economic dynamism that may have contributed to later industrialization, we will first examine the growth of long-distance trade networks starting in the late fourteenth century. How were traditional economies characterized by limited movement stimulated by the circulation of people, goods, and money from afar? We will then move to a discussion of the factors leading to (or frustrating) transformational patterns of economic growth: agricultural productivity, institutions, "proto-industrial" production in an era of limited urban growth, and changing norms of consumption. This course is part of the College Course Cluster program: Economic History, from Sumer to the Global World.
Instructor(s): P. Cheney & K. Pomeranz Terms Offered: Winter
Note(s): History Gateways are introductory courses meant to appeal to 1st- through 3rd-yr students who may not have done previous course work on the topic of the course; topics cover the globe and span the ages.
Equivalent Course(s): HIST 19402

ECON 12220. Economic History III: The Global Economy from Great Depression to Great Recession. 100 Units.
This is the third part in the economic history sequence. Topics include the second Industrial Revolution and the new imperialism, the Great Depression and World War II, the American postwar world economic order, communism, and third-world development; globalization, growth, inequality, and climate change; the great recession. This course is part of the College Course Cluster program: Economic History, from Sumer to the Global World.
Instructor(s): J. Levy Terms Offered: Spring
Equivalent Course(s): HIST 29533, HIST 39533

ECON 13000. Introduction to Money and Banking. 100 Units.
The course focuses on monetary policy and central bank's attempts to stabilize prices and promote maximum sustainable economic growth. Topics include the structure of the Federal Reserve, the conduct of monetary policy, the term structure of interest rates, risk valuation, management of banking, and financial crises.
Instructor(s): K. Kuevibulvanich Terms Offered: Winter
Prerequisite(s): Econ 10200

ECON 14810. Evolution and Economics of Human Behavior. 100 Units.
This course explores how evolutionary biology and behavioral economics explain many different aspects of human behavior. Specific topics include evolutionary theory, natural and sexual selection, game theory, cost-benefit analyses of behavior from an evolutionary and a behavioral economics perspective, aggression, power and dominance, cooperation and competition, biological markets, parental investment, life history and risk-taking, love and mating, physical attractiveness and the market, emotion and motivation, sex and consumer behavior, cognitive biases in decision-making, and personality and psychopathology. Note(s): CHDV Distribution, A*; 1* Equivalent Course(s): CHDV 37950, PSYC 27950, PSYC 37950, BIOS 29265, ECON 14810
Instructor(s): D. Maestripieri Terms Offered: Winter
Note(s): CHDV Distribution, A
Equivalent Course(s): PSYC 27950, CHDV 27950, PSYC 37950, BIOS 29265, CHDV 37950

ECON 19000. Economics for Everyone. 100 Units.
The field of economics has generated a powerful set of insights which have fundamentally shaped the modern world. Because modern economics puts such a heavy stress on mathematical rigor, the most interesting economic ideas often get pushed to the background. In this course, we will explore these big economic ideas, without the math. Our goal is to make the beauty and power of economic thinking available to everyone. We will discuss what it means to think like an economist, how you can use economic thinking to make the world a better place (or to take advantage of your friends and enemies, if you prefer), and also how sometimes thinking like an economist can get you into trouble.
Instructor(s): J. List, S. Levitt Terms Offered: Winter

ECON 19100. Economics for Everyone: Macro. 100 Units.
This course explores the big ideas in macroeconomics in a way that is enjoyable and accessible, with minimal reliance on mathematics. The goal is to provide an introduction to macroeconomic issues for people who have never before studied macroeconomics (and who might never study it again), so that they can understand and contribute to ongoing discussions in the news and on social media. We will demystify some of the major macroeconomic questions of our times: Why is there unemployment? Why are some countries poor? What's the big deal about government debt? How high should we set taxes? What gives money and stocks their value? What does the Fed do? And why did all those economists win Nobel Prizes? We will show the fun, interesting, and strange sides of macroeconomics.
Instructor(s): G. Kaplan Terms Offered: Spring

ECON 19800. Introduction to Microeconomics. 100 Units.
By way of economic theory, applications, and contemporary issues, this course treats (1) the behavior and decision making on the part of individuals, business firms, and governments; and (2) the function of costs, prices, incentives, and markets in the American economy. We discuss contemporary topics (e.g., distribution of income, the environment, education, sports, health care).
Instructor(s): A. Sanderson, J. List Terms Offered: Autumn, Spring
ECON 19900. Intro To Macroeconomics. 100 Units.
By way of theory and public policy applications, this course covers current major domestic and international macroeconomic issues in the U.S. economy, including the determination of income and output, inflation, unemployment, and economic growth; money, banking, and the Federal Reserve System; federal spending, taxation, and deficits; and international trade, exchange rates, and the balance of payments.
Instructor(s): A. Sanderson Terms Offered: Autumn,Winter

ECON 20000-20100-20200-20300. The Elements of Economic Analysis I-II-III-IV.

ECON 20000. The Elements of Economic Analysis I. 100 Units.
This course develops the economic theory of consumer choice. This theory characterizes optimal choices for consumers given their incomes and preferences, as well as the relative prices of different goods. This course develops tools for analyzing how these optimal choices change when relative prices and consumer incomes change. Finally, this course presents several measures of consumer welfare. Students learn how to evaluate the impact of taxes and subsidies using these measures. Completion of ECON 19800 is strongly recommended of students without a prior microeconomics course.
Terms Offered: Autumn Spring
Prerequisite(s): MATH 13300 (with prior completion of or at least concurrent with MATH 19520), MATH 15300, or 16300. First-year students must also pass the economics placement exam or complete ECON 10000 (or ECON 19800).

ECON 20100. The Elements of Economic Analysis II. 100 Units.
This course is a continuation of ECON 20000. The first part of this course discusses markets with one or a few suppliers. The second part focuses on demand and supply for factors of production and the distribution of income in the economy. This course also includes some elementary general equilibrium theory and welfare economics.
Instructor(s): Staff Terms Offered: Autumn Winter
Prerequisite(s): ECON 20000 or 20010

ECON 20200. The Elements of Economic Analysis III. 100 Units.
As an introduction to macroeconomic theory and policy, this course covers the determination of aggregate demand (i.e., consumption, investment, the demand for money); aggregate supply; and the interaction between aggregate demand and supply. We also discuss economic growth, business cycle, inflation and money. Completion of ECON 19900 is strongly recommended of students without a prior macroeconomics course.
Instructor(s): Staff Terms Offered: Spring Winter
Prerequisite(s): ECON 20100 or 20110

ECON 20300. Elements of Economic Analysis IV. 100 Units.
This is a course in money and banking, monetary theories, the determinants of the supply and demand for money, the operation of the banking system, monetary policies, financial markets, and portfolio choice.
Instructor(s): Staff
Prerequisite(s): ECON 20200 or 20210

ECON 20010-20110-20210. The Elements of Economic Analysis: Honors I-II-III.
The Elements of Economic Analysis: Honors I-II-III

ECON 20010. The Elements of Economic Analysis I Honors. 100 Units.
The scope of the honors section is the same as the standard section, but it covers material at greater depth and using more sophisticated mathematical methods. This course develops the economic theory of consumer choice. This theory characterizes optimal choices for consumers given their incomes and preferences, as well as the relative prices of different goods. This course develops tools for analyzing how these optimal choices change when relative prices and consumer incomes change. Finally, this course presents several measures of consumer welfare. Students learn how to evaluate the impact of taxes and subsidies using these measures. Completion of ECON 19800 is strongly recommended of students without a prior microeconomics course.
Instructor(s): Staff Terms Offered: Autumn Spring
Prerequisite(s): MATH 13300 (with prior completion of or at least concurrent with MATH 19520), MATH 15300, or 16300. First-year students must also pass the economics placement exam or complete ECON 10000 (or ECON 19800).

ECON 20110. The Elements of Economic Analysis II Honors. 100 Units.
The scope of the honors section is the same as the standard section, but it covers material at greater depth and using more sophisticated mathematical methods. This course is a continuation of ECON 20000/20010. The first part of this course discusses markets with one or a few suppliers. The second part focuses on demand and supply for factors of production and the distribution of income in the economy. This course also includes some elementary general equilibrium theory of welfare economics.
Instructor(s): Staff Terms Offered: Autumn Winter
Prerequisite(s): ECON 20000 or 20010
ECON 20210. The Elements of Economic Analysis III Honors. 100 Units.
The scope of the honors section is the same as the standard section, but it covers material at greater depth and using more sophisticated mathematical methods. As an introduction to macroeconomic theory and policy, this course covers the determination of aggregate demand (i.e., consumption, investment, the demand for money); aggregate supply; and the interaction between aggregate demand and supply. We also discuss economic growth, business cycle, inflation and money. Completion of ECON 19900 is strongly recommended of students without a prior macroeconomics course.
Instructor(s): Staff Terms Offered: Spring Winter
Prerequisite(s): ECON 20100 or 20110

ECON 20100. The Elements of Economic Analysis II. 100 Units.
This course is a continuation of ECON 20000. The first part of this course discusses markets with one or a few suppliers. The second part focuses on demand and supply for factors of production and the distribution of income in the economy. This course also includes some elementary general equilibrium theory and welfare economics.
Instructor(s): Staff Terms Offered: Autumn Winter
Prerequisite(s): ECON 20000 or 20010

ECON 20110. The Elements of Economic Analysis II Honors. 100 Units.
The scope of the honors section is the same as the standard section, but it covers material at greater depth and using more sophisticated mathematical methods. This course is a continuation of ECON 20000/20010. The first part of this course discusses markets with one or a few suppliers. The second part focuses on demand and supply for factors of production and the distribution of income in the economy. This course also includes some elementary general equilibrium theory of welfare economics.
Instructor(s): Staff Terms Offered: Autumn Winter
Prerequisite(s): ECON 20000 or 20010

ECON 20200. The Elements of Economic Analysis III. 100 Units.
As an introduction to macroeconomic theory and policy, this course covers the determination of aggregate demand (i.e., consumption, investment, the demand for money); aggregate supply; and the interaction between aggregate demand and supply. We also discuss economic growth, business cycle, inflation and money. Completion of ECON 19900 is strongly recommended of students without a prior macroeconomics course.
Instructor(s): Staff Terms Offered: Spring Winter
Prerequisite(s): ECON 20100 or 20110

ECON 20210. The Elements of Economic Analysis III Honors. 100 Units.
The scope of the honors section is the same as the standard section, but it covers material at greater depth and using more sophisticated mathematical methods. As an introduction to macroeconomic theory and policy, this course covers the determination of aggregate demand (i.e., consumption, investment, the demand for money); aggregate supply; and the interaction between aggregate demand and supply. We also discuss economic growth, business cycle, inflation and money. Completion of ECON 19900 is strongly recommended of students without a prior macroeconomics course.
Instructor(s): Staff Terms Offered: Spring Winter
Prerequisite(s): ECON 20100 or 20110

ECON 20520. Formal Models of Political Economics. 100 Units.
This course introduces formal economic models adopted in the modern inquiry into the incentives of participants in political processes. The approach is largely game theoretical, while topics covered include electoral competition, checks and balances, delegation, legislative bargaining, political agency, special interest politics and campaign finance.
Instructor(s): R. Fang
Prerequisite(s): ECON 20100 (ECON 20700 strongly recommended)

ECON 20700. Game Theory and Economic Applications. 100 Units.
ECON 20700 or 20770 may be used as an economics elective, but only one may be used toward degree requirements. This course introduces the basic ideas and applications of game theory. Topics include models of games in extensive and strategic form, equilibria with randomization, signaling and beliefs, reputation in repeated games, bargaining games, investment hold-up problems, and mediation and incentive constraints.
Instructor(s): R. Fang Terms Offered: Autumn Spring Winter
Prerequisite(s): ECON 20100 (or ECON 10000 for declared business economics specialization). No first-year students.

ECON 20770. Decision and Strategy. 100 Units.
ECON 20700 or 20770 may be used as an economics elective, but only one may be used toward degree requirements. This course provides a formal introduction to game theory with applications in economics. We will study models of how individuals make decisions, and how those decisions are shaped by strategic concerns and uncertainty about the world. The topics will include the theory of individual choice, games of complete and incomplete information, and equilibrium concepts such as Nash equilibrium. The applications will include oligopoly, auctions, and bargaining. The course is appropriate for advanced undergraduates who are interested in a rigorous mathematical approach to understanding human behavior.
Instructor(s): E. Lipnowski Terms Offered: Winter
Prerequisite(s): ECON 20100 and MATH 20300, or consent of instructor
ECON 20780. Decision and Strategy II. 100 Units.
We continue the formal introduction to decision theory and game theory begun in ECON 20770, with a specific focus on models of incomplete information. Topics covered include subjective expected utility, Bayesian games, contract theory, and mechanism design. Among the applications we will consider are auctions, collusion, entry deterrence, and strategic communication. The course is appropriate for advanced undergraduates who are interested in a rigorous mathematical approach to decision making in strategic situations.
Instructor(s): B. Brooks Terms Offered: Spring
Prerequisite(s): ECON 20770 or consent of instructor

ECON 20800. Theory of Auctions. 100 Units.
In part, this course covers the analysis of the standard auction formats (i.e., Dutch, English, sealed-bid) and describes conditions under which they are revenue maximizing. We introduce both independent private-value models and interdependent-value models with affiliated signals. Multi-unit auctions are also analyzed with an emphasis on Vickrey’s auction and its extension to the interdependent-value setting.
Instructor(s): P. Reny Terms Offered: Winter
Prerequisite(s): ECON 20100, MATH 20300, and STAT 24400

ECON 21010. Statistical Methods in Economics. 100 Units.
This course provides a solid foundation in probability and statistics for economists. We emphasize topics needed for further study of econometrics in ECON 21020. Topics include elements of probability theory, sampling theory, estimation, hypothesis testing, and an introduction to linear algebra.
Instructor(s): Staff Terms Offered: Autumn, Spring
Prerequisite(s): ECON 20000 (or ECON 10200 for declared business economics specialization)

ECON 21020. Econometrics. 100 Units.
Required of students who are majoring in economics; those students are encouraged to meet this requirement by the end of their third year. This course covers the single and multiple linear regression model, the associated distribution theory, and testing procedures; corrections for heteroskedasticity, autocorrelation, and simultaneous equations; and other extensions as time permits. Students also apply the techniques to a variety of data sets using PCs.
Instructor(s): Staff Terms Offered: Autumn, Spring, Winter
Prerequisite(s): ECON 20100, ECON 21010, or STAT 23400 and MATH 19620 (or MATH 20000 or STAT 24300 or MATH 20250)

ECON 21030. Econometrics - Honors. 100 Units.
The topics are essentially the same as those covered in ECON 21020, but this foundations course in econometrics gives a more systematic introduction to the application of statistical theory to economic applications. This course is intended for students who are planning to study economics at the graduate level.
Instructor(s): Staff Terms Offered: Spring, Winter
Prerequisite(s): ECON 20100, and STAT 24400, 24410 or 24500, and MATH 20250 or STAT 24300; or consent of instructor

ECON 21110. Applied Microeconometrics. 100 Units.
ECON 21100 or 21110 or 21130 or 21150 may be used as an economics elective, but only one may be used toward degree requirements. This course will cover a broad set of applications in labor economics, public economics, industrial organization, economics of education, environmental economics, and development economics. There will be a strong focus on how economic theory, institutional details, and experiments can be used to draw causal inferences on economic relationships. There will be emphasis on applying a number of commonly used microeconometric methods to economic data; including the linear regression model, fixed and random effects models, instrumental variables, and discrete choice models. When interpreting the empirical results, we will also discuss the importance of omitted variables bias and measurement error.
Instructor(s): J. Joensen
Prerequisite(s): ECON 21020 or ECON 21030

ECON 21130. Topics in Microeconometrics. 100 Units.
ECON 21100 or 21110 or 21130 or 21150 may be used as an economics elective, but only one may be used toward degree requirements. This course focuses on micro-econometric methods that have applications to a wide range of economic questions. We study identification, estimation, and inference in both parametric and non-parametric models and consider aspects such as consistency, bias and variance of estimators. We discuss how repeated measurements can help with problems related to unobserved heterogeneity and measurement error, and how they can be applied to panel and network data. Topics include duration models, regressions with a large number of covariates, non-parametric regressions, and dynamic discrete choice models. Applications include labor questions such as labor supply, wage inequality decompositions and matching between workers and firms. Students will be expected to solve programming assignment in R.
Prerequisite(s): ECON 21020 OR ECON 21030
ECON 21150. Topics in Applied Econometrics. 100 Units.
ECON 21100 or 21110 or 21130 or 21150 may be used as an economics elective, but only one may be used toward degree requirements. This course builds on the theoretical foundations set in Econ 21030 and explores more advanced topics pertinent to modern economic applications. While the course content may change from year to year according to student and instructor interests, some potential topics are panel data methods, treatment effects/causal inference, discrete choice/limited dependent variable models, demand estimation, and selected topics in economic applications of supervised and unsupervised learning algorithms. The course will involve analytically and computationally intensive assignments and a significant project component.
Instructor(s): A. Hortacsu Terms Offered: Winter
Prerequisite(s): ECON 21030

ECON 21300. Data Construction and Interpretation in Economic Applications. 100 Units.
In this course we will explore the process of extracting insights from real-world data. What can one learn from a particular data set? How do you know what sets of tools will be "right" for the job? How can you increase your degree of confidence that the inferences you are drawing are correct? How can you best communicate the insights you glean from the data? Unlike standard econometrics courses, this class emphasizes hands-on work with actual data sets rather than the development of sophisticated tools and techniques (which are also useful, you just won't learn them here!).
Instructor(s): S. Levitt Terms Offered: Winter
Prerequisite(s): CMSC 12300/15200/16200 and ECON 21020 (ECON 21030 Honors Econometrics preferred)

ECON 21320. Applications of Econometric and Data Science Methods. 100 Units.
This course builds on the theoretical foundations set in Econ 21030 and explores further topics pertinent to modern economic applications. While the course content may change from year to year according to student and instructor interests, some potential topics are panel data methods, treatment effects/causal inference, discrete choice/limited dependent variable models, demand estimation, and topics in economic applications of supervised and unsupervised learning algorithms. The course will involve analytically and computationally intensive assignments and a significant empirical project component.
Instructor(s): A. Hortacsu Terms Offered: Winter
Prerequisite(s): CMSC 12300/15200/16200 and ECON 21020 (ECON 21030 Honors Econometrics preferred)

ECON 21330. Econometrics and Machine Learning. 100 Units.
This course reviews a number of modern methods from econometrics, statistics and machine learning, and presents applications to economic problems. Examples of methods covered are simulation-based techniques, regularization via coefficient and matrix penalization, and regression and classification methods such as trees, forests and neural networks. Applications include economic models of network formation, and dimension reduction for structural economic models. The course involves programming and work with data. Beyond econometric background such as Econ 21030, students should have a solid background in computation.
Instructor(s): S. Bonhomme Terms Offered: Spring
Prerequisite(s): CMSC 12300/15200/16200 and ECON 21020 (ECON 21030 Honors Econometrics preferred)

ECON 21410. Computational Methods in Economics. 100 Units.
This course introduces the empirical and computational techniques necessary for numerical estimation and simulation in economics. Through examples in economics, the course covers topics such as optimization, function approximation, and monte carlo techniques. Emphasis will be placed on developing effective programming and research practices. The course is structured through a series of applications in such topics as segregation, occupational choice, and repeated games. The course will be taught in R and STATA. Though helpful, no previous experience with R or STATA is required.
Instructor(s): Staff Terms Offered: Spring
Prerequisite(s): ECON 20100 and ECON 21020 or ECON 21030

ECON 21730. Applied Behavioral Economics. 100 Units.
This class covers recent work in behavioral economics. Topics include discrimination, social pressure, social norms, identity and gender. Applications will cover a wide range of fields, including labor economics, finance, and political economy.
Instructor(s): L. Bursztyn Terms Offered: Winter
Prerequisite(s): ECON 20100 and ECON 21020 (or ECON 21030).

ECON 21800. Experimental Economics. 100 Units.
This course provides the necessary tools to be an avid consumer of the experimental literature and instructs students on how to become a producer of that literature. Topics include a summary of recent experimental findings and details on how to gather and analyze data using experimental methods.
Instructor(s): L. Bursztyn Terms Offered: Winter
Prerequisite(s): ECON 20100 and ECON 21020 (or ECON 21030); OR ECON 10000 for declared business economics specialization. No first-year students.
Equivalent Course(s): ECON 41100
ECON 21830. Social Neuroscience. 100 Units.
Social species, by definition, create emergent organizations beyond the individual - structures ranging from dyads and families to groups and cultures. Social neuroscience is the interdisciplinary field devoted to the study of neural, hormonal, cellular, and genetic mechanisms, and to the study of the associations and influences between social and biological levels of organization. The course provides a valuable interdisciplinary framework for students in psychology, neuroscience, behavioral economics, and comparative human development. Many aspects of social cognition will be examined, including but not limited to attachment, attraction, altruism, contagion, cooperation, competition, dominance, empathy, isolation, morality, and social decision-making.
Instructor(s): J. Decety Terms Offered: Spring
Equivalent Course(s): NSCI 21000, CHDV 22350, BIOS 24137, PSYC 22350

ECON 22000. Topics in American Economic History. 100 Units.
Economic analysis is applied to important issues in American economic history. Specific topics vary, but may include the following: the economics of colonization, the transatlantic slave trade, the role of indentured servitude and slavery in the colonial labor market, the record and sources of 19th-century economic growth, economic causes and effects of 19th-century immigration, the expansion of education, the economics of westward migration, determinants of long-run trends in the distribution of income and wealth, the quantitative analysis of economic and social mobility, and the economics of racial discrimination in the twentieth-century South.
Instructor(s): D. Galenson Terms Offered: Autumn
Prerequisite(s): ECON 20100
Equivalent Course(s): ECON 32000

ECON 22410. UChicago Economics: The People and the Seminal Ideas. 100 Units.
Econ 24720 or Econ 22410 may be used as an economics elective, but only one of the two may be used toward economics major requirements. This course will trace in general the history and evolution of economic thought as an intellectual discipline, from the Middle Ages through Adam Smith and the Classical dominance in the 18th and 19th centuries, to the neoclassical period and alternative schools, and then the rise of Keynesian economics and the emergence of the Chicago School of economics in the 20th century. With this background and context, the focus will turn to the theoretical and empirical contributions of important historical UChicago figures such as Veblen, Knight, Hayek, Friedman, Stigler, Coase and Becker as well as the seminal ideas of contemporary scholars, including several Nobel laureates, in the Department, other academic units on campus, and economists elsewhere with deep Chicago roots.
Instructor(s): A. Sanderson and Staff Terms Offered: Winter
Prerequisite(s): ECON 20200. Third- or fourth-year standing.

ECON 22600. Innovators. 100 Units.
Economists believe that innovation is a primary source of economic growth. Yet although most innovations are made by individuals or small groups, until recently economists have not studied how those exceptional people produce their discoveries. Recent research has shown that there are two very different types of innovators, who have different goals and follow different processes. This course surveys this research, examining the careers and innovations of important practitioners in a range of modern arts, including painters, novelists, sculptors, poets, movie directors, photographers, songwriters, and architects, as well as entrepreneurs and scientists. The material covered in this course adds a new dimension to our understanding of creativity and of how innovators in many different activities produce new forms of art and science.
Instructor(s): D. Galenson Terms Offered: Autumn
Prerequisite(s): ECON 20100
Equivalent Course(s): ECON 42900

ECON 22650. Creativity. 100 Units.
This seminar examines recent research on how creative people innovate in a wide range of intellectual activities. The main project for the course is a term paper that analyzes the creative life cycle of one or more innovators of the student's choice, using both quantitative evidence. Students present their research in progress for discussion. The seminar is designed to give students all the tools needed to do this research, including choosing a subject, finding and using an appropriate data set, and negotiating the relevant scholarship.
Instructor(s): D. Galenson Terms Offered: Winter
Prerequisite(s): ECON 20100
Equivalent Course(s): ECON 42800

ECON 23000. Money and Banking. 100 Units.
This course covers economic theories and topical issues in money and banking. We discuss such "traditional" topics as the quantity theory, the Phillips curve, and the money creation process. We also investigate models of bank runs and financial crises, the tradeoff between rules and discretion, and the New Macroeconomic Synthesis of New Classical. Other topics include New Keynesian approaches to modeling money and monetary policy, practical and institutional issues in European and U.S. monetary policy, and the 2008 financial crisis.
Instructor(s): H. Uhlig Terms Offered: Winter
Prerequisite(s): ECON 20200 (or ECON 20210)
ECON 23040. Cryptocurrencies. 100 Units.
This course will cover both the computer science aspects and economic aspects of cryptocurrencies. Topics to be discussed will include network and system building blocks, consensus protocols, cryptographic algorithms, security and privacy issues, pricing of cryptocurrencies, bubbles, monetary policy issues and regulatory concerns.
Instructor(s): D. Cash, H. Uhlig, B. Zhao Terms Offered: Winter
Prerequisite(s): CMSC 10500, 12100, 15100, or 16100 and ECON 10000 (ECON 19800) or ECON 10200 (ECON 19900)
Equivalent Course(s): CMSC 23280

ECON 23200. Topics in Macroeconomics. 100 Units.
This course focuses on the use of dynamic general equilibrium models to study questions in macroeconomics. Topics include long-run growth and dynamic fiscal policy (Ricardian equivalence, tax smoothing, capital taxation), labor market search, industry investment, and asset pricing. On the technical side, we cover basic optimal control (Hamiltonians) and dynamic programming (Bellman equations).
Instructor(s): N. Stokey Terms Offered: TBD
Prerequisite(s): ECON 20200 (or ECON 20210) and MATH 20300

ECON 23230. Macroeconomic Crises. 100 Units.
This course introduces students to economic theories of “crises” or particular periods of rapid (negative) changes in real and financial variables that are distinct from long-run growth and regular business cycles. In particular, we will cover the origin and end of speculative bubbles, runs and credit crunches. We will study capital flows in the open macroeconomy and the effects of sudden stops. Furthermore, we will analyze sovereign debt crises and defaults -- their causes and consequences for labor market, banking sector, and aggregate income. Looking at some recent episodes, we will also discuss fiscal policy.
Instructor(s): N. Balke Terms Offered: Spring
Prerequisite(s): ECON 23950 and ECON 21020 (or ECON 21030)

ECON 23330. Introduction to Dynamic Economic Modeling. 100 Units.
The core methodology will be consistent over time, but the applications will vary from year to year. The course will analyze decentralized equilibrium and social planner’s problems in dynamic environments. It will focus on developing techniques for analyzing such models graphically, analytically, and computationally. Students should be familiar with constrained optimization (e.g. Lagrangians), linear algebra, and difference equations, as well as microeconomics, macroeconomics, and econometrics at an intermediate level.
Instructor(s): R. Shimer
Prerequisite(s): ECON 20200 (or ECON 20210) and ECON 21020 (or ECON 21030)

ECON 23410. Economic Growth. 100 Units.
The process of economic growth and the sources of differences in economic performance across nations are some of the most interesting, important and challenging areas in modern social science. You cannot travel or read the news without wondering why differences in standards of living among countries are so large. The primary purpose of this course is to introduce undergraduate students to these major issues and to the theoretical tools necessary for studying them. The course therefore strives to provide students with a solid background in dynamic economic analysis, as well as empirical examples and data analysis. We will cover models at an abstract and advanced level. You must have the degree of mathematical maturity associated with the concepts of functions, derivatives, integrals, Taylor series, optimization, ordinary differential equations. Some basic knowledge on regression analysis is also required.
Instructor(s): U. Akcigit Terms Offered: Winter
Prerequisite(s): ECON 20200 (or ECON 20210) and ECON 21020 (or ECON 21030)

ECON 23950. Economic Policy Analysis. 100 Units.
Building on the tools and methods that are developed in the core courses, this course analyzes fiscal and monetary policy and other topical issues. We use both theoretical and empirical approaches to understand the real-world problems.
Instructor(s): Staff Terms Offered: Autumn Spring
Prerequisite(s): ECON 20200; ECON 21020 or 21030 strongly recommended.

ECON 24000. Labor Economics. 100 Units.
Topics include the theory of time allocation, the payoffs to education as an investment, detecting wage discrimination, unions, and wage patterns. Most of the examples are taken from U.S. labor data, although we discuss immigration patterns and their effects on U.S. labor markets. Some attention is also given to the changing characteristics of the workplace.
Instructor(s): Staff Terms Offered: TBD
Prerequisite(s): ECON 20100 and ECON 21020 (or ECON 21030)
ECON 24450. Inequality and the Social Safety Net: Theory, Empirics, and Policies. 100 Units.
This course will introduce students to key economic and conceptual issues surrounding inequality and the social safety net. We will study the theoretical underpinnings and empirical analysis of the social safety net, focusing on the effects of social insurance and public assistance programs on individual and societal outcomes. After studying models of the insurance-incentive tradeoff, we will apply these models and econometric strategies to the empirical analysis of social safety net programs. We will study how social safety net programs interact with labor markets, specifically human capital investment and work decisions, and how they affect long-term outcomes such as income, health, well-being, and inequality. Students will learn how to analyze the tradeoffs involved in social safety net programs and will learn the current state of evidence on these programs.
Instructor(s): M. Deshpande
Terms Offered: Spring
Prerequisite(s): ECON 20100 and ECON 21020 or ECON 21030

ECON 24720. Inequality: Origins, Dimensions, and Policy. 100 Units.
For the last four decades, incomes in the United States and across the globe have grown more unequal. That fact has attracted worldwide attention from scholars, governments, religious figures, and public intellectuals. In this interdisciplinary course, participating faculty members drawn from across the University and invited guest speakers will trace and examine the sources and challenges of inequality and mobility in many of its dimensions, from economic, political, legal, biological, philosophical, public policy, and other perspectives. This course is part of the College Course Cluster program: Inequality.
Instructor(s): A. Sanderson and Staff
Terms Offered: Winter
Prerequisite(s): Third- or fourth-year standing
Note(s): ECON 24720 or ECON 22410 may be used as an Economics elective, but only one of the two may be used toward Economics major requirements.
Equivalent Course(s): PBPL 28920, BPRO 28900

ECON 25000. Introduction To Finance. 100 Units.
This course develops the tools to quantify the risk and return of financial instruments. These are applied to standard financial problems faced by firms and investors. Topics include arbitrage pricing, the capital asset pricing model, and the theory of efficient markets and option pricing.
Instructor(s): Staff
Terms Offered: Autumn Spring
Prerequisite(s): ECON 20100 and STAT 23400, and ECON 21000

ECON 25100. Financial Economics; Speculative Markets. 100 Units.
This course focuses on the description, pricing, and hedging of basic derivative claims on financial assets. We study the characteristics, uses, and payoffs of a variety of contracts where the underlying claims include commodities, foreign currencies, bonds, stocks, or stock indices. We examine contracts such as options, swaps, and futures contracts. We use a unified approach (the technique of portfolio replication) to study pricing of these claims. Students also gain an understanding of strategies for hedging of the risks inherent in holding these derivative claims.
Instructor(s): F. Alvarez
Terms Offered: Spring
Prerequisite(s): ECON 20100 and ECON 21020 (or ECON 21030)

ECON 25130. Behavioral Finance. 100 Units.
This course is designed to give students an overview of psychological biases in financial decision-making and examine the impacts of these biases in financial markets. It will also introduce students to behavioral and experimental methodologies--both in the lab and in the field--used in finance. Topics include: non-expected utility theories under risk and ambiguity, biases in probabilistic judgment, framing, loss aversion, self-control and non-exponential discounting, mental accounting and herding.
Instructor(s): G. Ponti
Terms Offered: Spring
Prerequisite(s): ECON 20100 and ECON 21020 (or ECON 21030)

ECON 25710. China's Economic Development & Transition. 100 Units.
Equivalent Course(s): PBPL 27150

ECON 26010. Public Finance. 100 Units.
This course addresses the measurement, explanation, and consequences of government activity including tax systems, expenditure programs, and regulatory arrangements. Topics include cross-country comparisons of government behavior, market analyses of public policy, the incidence of government activity, and effects of economic activity on politics and public policy.
Instructor(s): M. Golosov, C. Clapp
Terms Offered: Autumn Winter
Prerequisite(s): ECON 20200 and ECON 21020 (or ECON 21030)
Note(s): ECON 26010 or 26020 may be used as an economics elective, but only one may be used toward degree requirements.

ECON 26020. Public Sector Economics. 100 Units.
ECON 26010 or 26020 may be used as an economics elective, but only one may be used toward degree requirements.
This course addresses the measurement, explanation, and consequences of government activity including tax systems, expenditure programs, and regulatory arrangements. Topics include cross-country comparisons of government behavior, market analyses of public policy, the incidence of government activity, and effects of economic activity on politics and public policy.
Instructor(s): C. Mulligan
Prerequisite(s): ECON 23950 AND ECON 21020 (or ECON 21030); or consent of instructor
ECON 26500. Environmental Economics. 100 Units.
This course applies theoretical and empirical economic tools to environmental issues. We discuss broad concepts such as externalities, public goods, property rights, market failure, and social cost-benefit analysis. These concepts are applied to areas that include nonrenewable resources, air and water pollution, solid waste management, and hazardous substances. We emphasize analyzing the optimal role for public policy.
Instructor(s): S. Shaikh Terms Offered: Econ 26500 will not be offered in 2018-19.
Prerequisite(s): ECON 20100
Equivalent Course(s): ENST 26530, PBPL 32631

ECON 26530. Environment, Agriculture, and Food: Economic and Policy Analysis. 100 Units.
The connections between environment, agriculture, and food are inherent in our social, cultural, and economic networks. Land use, natural resource management, energy balances, and environmental impacts are all important components in the evolution of agricultural systems. Therefore it is important to develop ways in which to understand these connections in order to design effective agricultural programs and policies. This course is designed to provide students with guidance on the models and tools needed to conduct an economic research study on the intersecting topics of environment, agriculture, and food. Students learn how to develop original research ideas using a quantitative and applied economic policy analysis for professional and scholarly audiences. Students collect, synthesize, and analyze data using economic and statistical tools. Students provide outcomes and recommendations based on scholarly, objective, and policy relevant research rather than on advocacy or opinions, and produce a final professional-quality report for a workshop presentation and publication. This small seminar course is open by instructor consent to undergraduate and graduate students who meet the prerequisites. For consideration, please submit a one-page proposal of research to pge@uchicago.edu.
Instructor(s): S. Shaikh Terms Offered: Winter
Prerequisite(s): ECON 20000 or ECON 20100 or PBPL 20000 or PBPL 22200 (or equivalent), STAT 22000 or STAT 23400 or PBPL 26400 (or equivalent); for ECON Enrollment: ECON 20000 and ECON 20100, STAT 23400
Equivalent Course(s): PPHA 32510, ENST 26530, PBPL 26530

ECON 26540. Environment, Agriculture, and Food: Advanced Economic and Policy Analysis. 100 Units.
This course is an extension of ENST 26530 but also stands alone as a complete course itself. Students don’t need to take ENST 26530 to enroll in this course. This small seminar course is open by instructor consent to undergraduate and graduate students who meet the prerequisites. For consideration, please submit a one-page proposal of research to pge@uchicago.edu.
Instructor(s): S. Shaikh Terms Offered: Spring
Prerequisite(s): ECON 20000 or ECON 20100 or PBPL 20000 or PBPL 22200 (or equivalent), STAT 22000 or STAT 23400 or PBPL 26400 (or equivalent); for ECON Enrollment: ECON 20000 and ECON 20100, STAT 23400
Equivalent Course(s): ENST 26531, PPHA 32520, PBPL 26531

ECON 26700. Economics of Education. 100 Units.
This course explores economic models of the demand for and supply of different forms of schooling. The course examines the markets for primary, secondary, and post-secondary schooling. The course examines numerous public policy questions, such as the role of government in funding or subsidizing education, the design of public accountability systems, the design of systems that deliver publicly funded (and possibly provided) education, and the relationship between education markets and housing markets.
Instructor(s): D. Neal Terms Offered: TBD
Prerequisite(s): ECON 21020 or ECON 21030
Equivalent Course(s): PBPL 26705

ECON 26800. Energy and Energy Policy. 100 Units.
This course shows how scientific constraints affect economic and other policy decisions regarding energy, what energy-based issues confront our society, how we may address them through both policy and scientific study, and how the policy and scientific aspects can and should interact. We address specific technologies, both those now in use and those under development, and the policy questions associated with each, as well as with more overarching aspects of energy policy that may affect several, perhaps many, technologies.
Instructor(s): S. Berry, G. Tolley Terms Offered: TBD. May be offered 2018-2019
Prerequisite(s): PQ: Third- or fourth-year standing. For ECON majors who want ECON credit for this course (ECON 26800): PQ is ECON 20100.
Equivalent Course(s): PSMS 39000, ENST 29000, BPRO 29000, PBPL 29000, CHSS 37502, PPHA 39201

ECON 26920. Behavioral Economics and Policy. 100 Units.
The standard theory of rational choice exhibits explanatory power in a vast range of circumstances, including such disparate decision making environments as whether to commit a crime, have children, or seek to emigrate. Nonetheless, shortfalls from full rationality seem not to be uncommon, and are themselves, to some extent, systematic. Behavioral economics documents and tries to account for these departures from full rationality. This course looks at areas in which some modification of the traditional rational choice apparatus might most be warranted; these include decisions that unfold over time, involve low probability events, or implicate willpower. To what extent should public policy respond to shortfalls from rationality or concern itself with promoting happiness?
Instructor(s): J. Leitzel Terms Offered: Winter
Equivalent Course(s): PBPL 28805
ECON 27000. International Economics. 100 Units.
This course covers international economics with an emphasis on international trade. The basic theories of international trade are introduced and used to analyze welfare and distributional effects of international trade, government policies, and technology diffusion. In addition, this course also discusses the main empirical patterns of international trade and international investment.
Instructor(s): F. Tintelnot Terms Offered: Winter
Prerequisite(s): ECON 20100
Equivalent Course(s): PBPL 27000

ECON 27700. Health Economics and Public Policy. 100 Units.
This course analyzes the economics of health and medical care in the United States with particular attention to the role of government. The first part of the course examines the demand for health and medical care and the structure and the consequences of public and private insurance. The second part of the course examines the supply of medical care, including professional training, specialization and compensation, hospital competition, and finance and the determinants and consequences of technological change in medicine. The course concludes with an examination of recent proposals and initiatives for health care reform.
Instructor(s): Meltzer, D Terms Offered: TBD
Prerequisite(s): PBPL 20000 or ECON 20000 and one undergraduate course in quantitative research methods (Statistics or Econometrics) or the equivalent or consent of the instructor
Equivalent Course(s): PPHA 38300, PBHS 38300, PBPL 28300, CCTS 38300

ECON 27720. Economics and Regulation of Health Care Markets: Theory and Empirics. 100 Units.
This course explores theoretical and empirical facets of the economics of health care and the industrial organization of the health care sector. The course primarily follows the approach of model-driven empirical work, combining economic modelling with experimental and observational data to test for and quantify theoretical predictions. Topics include asymmetric information, adverse selection, demand for medical care, health care externalities, regulation of health insurance markets, health care outside the US, and public and private incentives for medical research. A particular emphasis is on how government regulation and market incentives interact in generating socially relevant outcomes.
Instructor(s): P. Tebaldi Terms Offered: Spring
Prerequisite(s): ECON 20100 required, ECON 21020 strongly preferred

ECON 28060. The Economics of Organizations: An Experimental Perspective. 100 Units.
This course offers an introduction to the experimental methodology while at the same time providing the students with up-to-date insights and findings on how to run an organization and how to manage a workforce. Students will learn the basics of the experimental methodology, learn about the most ground-breaking findings in experimental economics related to the functioning of firms, and know the relevant papers and findings in organizational and personnel economics with a particular emphasis on the question of how to set incentives for workers.
Instructor(s): S. Neckermann Terms Offered: Winter
Prerequisite(s): ECON 20100 and STAT 23400 (or ECON 21010)

ECON 28100. The Economics of Sports. 100 Units.
This is a course in microeconomics that applies traditional product and factor market theory and quantitative analysis to contemporary economic issues in professional and college athletics. Topics include the sports business; market structures and outcomes; the market for franchises; barriers to entry; rival leagues, and expansion; cooperative, competitive, and collusive behavior among participants; labor markets, productivity, and compensation of players; racial discrimination; public policies and antitrust legislation; and financing of stadiums.
Instructor(s): A. Sanderson Terms Offered: Spring
Prerequisite(s): ECON 20100; ECON 21020 or ECON 21030 strongly recommended

ECON 28600. Economic Analysis of Law. 100 Units.
This course involves the application of the choice theory of economics to the opportunities obtainable within different legal environments. The likelihood that a person will choose to return a lost wallet, keep a promise, drive more carefully, or heed the terms in a will is partly a function of the applicable laws and regulations. Alternative rules, under the standard Law and Economics approach, are compared in terms of the economic efficiency of their subsequent outcomes. This efficiency lens of Law and Economics is applied to rules concerning property, torts, contracts, and criminal behavior.
Instructor(s): J. Leitzel Terms Offered: Winter
Prerequisite(s): ECON 20100
Equivalent Course(s): PBPL 28605

ECON 28620. Crony Capitalism. 100 Units.
The economic system prevailing in most of the world today differs greatly from the idealist version of free markets generally taught in economic classes. This course analyzes the role played by corporate governance, wealth inequality, regulation, the media, and the political process in general in producing these deviations. It will explain why crony capitalism prevails in most of the world and why it is becoming more entrenched also in the United States of America. The course, which requires only basic knowledge of economics, welcomes undergraduates. Grades will be determined as follows: 40% by the sum of all the homework, 30% by class participation and 30% by the final. Registration for this class concludes at the end of week 1.
ECON 28700. The Economics of Crime. 100 Units.
This course uses theoretical and empirical economic tools to analyze a wide range of issues related to criminal behavior. Topics include the police, prisons, gang behavior, guns, drugs, capital punishment, labor markets and the macroeconomy, and income inequality. We emphasize the analysis of the optimal role for public policy.
Instructor(s): S. Levitt
Prerequisite(s): ECON 20100 required; STAT 23400, ECON 21010, or ECON 21020 strongly recommended
Equivalent Course(s): PBPL 23200

ECON 29700. Undergrad Rdg/Rsch: Economics. 100 Units.
Students are required to submit the College Reading and Research Course Form. Prerequisite(s): Consent of directors of the undergraduate program
Instructor(s): J. Wong
Terms Offered: Autumn,Winter,Spring
Prerequisite(s): Consent of directors of the undergraduate program

ECON 29800. Undergraduate Honors Workshop. 100 Units.
For details, see the preceding Honors section.
Instructor(s): K. Yoshida, V. Lima
Terms Offered: Autumn Spring Winter
Prerequisite(s): Faculty sponsorship and consent of honors workshop supervisors

Business Economics Courses

Accounting

BUSN 20100. Financial Accounting. 100 Units.
This course provides an introduction to financial statements and the financial reporting process from a user's perspective. The focus of the course is on fundamental accounting concepts and principles. Students learn how the economic transactions of a firm are reported in the financial statements and related disclosures. The objective of the course is to provide students with basic skills necessary to read and analyze financial statements as well as to prepare students for more advanced financial statement analysis courses.
Terms Offered: Autumn
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20100 if BUSN 30000 Financial Accounting taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20101. Managerial Accounting. 100 Units.
This course focuses on internal operations, cost analysis, and performance evaluation, as opposed to the evaluation of external financial statements. Its targeted audience includes students intending become management consultants, entrepreneurs, managers (e.g., CEOs, CFOs, COOs, and product managers), and anyone with an interest in understanding how firms (1) make decisions about products and services and (2) evaluate performance and control risk. Topics covered include overhead allocation, activity based costing, opportunity cost of excess capacity, customer profitability, capital budgeting, transfer pricing, performance evaluation, risk management, internal controls, and fraud. Applications cover both the manufacturing and services sectors.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20101 if BUSN 30001 Cost Analysis and Internal Controls taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20150. Financial Statement Analysis. 100 Units.
This course teaches you how to analyze financial statements in order to develop financial statement models, assess credit risk, and, ultimately, value a company. The course provides both a framework and the tools necessary to analyze financial statements. Its primary objective is to advance your understanding of how financial reporting can be used in a variety of decisions (e.g., lending and investment decisions) and analyses (e.g., financial distress and bankruptcy prediction). It is applied in nature and stresses the use of actual financial statements. Throughout the course, I draw heavily on real business examples and use cases to illustrate the application of the techniques and tools. Topics include traditional ratio analysis techniques, accounting analysis (i.e., identifying earnings management and accounting quality issues), and financial risk assessment. The second part of the course focuses on equity valuation, e.g., the preparation of pro forma financial statements, and the use of various valuation models. While students with a multitude of interests will benefit from this course, students with an interest in investment banking, equity or credit analysis, consulting, strategy, corporate finance, or management will find this course particularly relevant.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20150 if BUSN 30130 Financial Statement Analysis taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge
Entrepreneurship

BUSN 20330. Building the New Venture. 100 Units.
This course is intended for students who are interested in starting new entrepreneurial businesses. It is tactical, hands-on, and covers the nuts and bolts of starting a company with a lesser emphasis on investing in entrepreneurial ventures. Students will learn how to raise seed funding, compensate for limited human and financial resources, establish brand values and positioning, secure a strong niche position, determine appropriate sourcing and sales channels, and develop execution plans in sales, marketing, product development and operations. The emphasis is managerial and entrepreneurial, essentially a working model for starting an enterprise. Paralleling the course content is the YourCo “game” in which teams of four to five students simulate building a new venture through the first 18 months of the life of a startup. At the beginning of the class, teams describe a product or service they would like to bring to market, determine the necessary seed funding amount, and outline current staffing and development status. Throughout the quarter, students explore the critical activities required to engage customers, build their product or service, scale operations and build teams. Each week, teams have specific written deliverables for their “company” based on the course material. Assignments include identifying key hires, choosing an initial target customer set, executing a marketing campaign, creating a sales pitch, completing a development or production plan, identifying important strategic partners, and determining next round funding requirements. “Game” points are awarded based on feasibility of actions, creativity of solutions, and adherence to seed budget constraints. The course content and structure is applicable to all types of businesses. Class projects range from high tech commercialization to retail concepts to small manufacturing firms. Through class lectures, “game” assignments, and real world cases, the course covers such topics as new product innovation; building a start-up management team; identifying target customers; inexpensive promotion/advertising techniques; professionalizing a sales process; and leveraging strategic partners. Emphasis is placed on marketing and sales for new enterprises, because this is a major area of entrepreneurial weakness.

Terms Offered: Autumn
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20330 if BUSN 34103 Building the New Venture taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20340. Developing a New Venture. 100 Units.
This course is designed to guide groups of students through the new venture creation process. Students will have passed through the first round of the College New Venture Challenge, and will be developing their own original new business ideas. Students may enter the course with ideas that are traditionally for-profit in nature or more socially oriented (either for- or not-for-profit ventures). Students in this course can expect to learn: • how to evaluate the potential and viability of their entrepreneurial ideas • how to conduct research on specific market opportunities • how to analyze the competitive landscape • have to evaluate the merits and drawbacks of unique business models • how to pitch their idea/venture to investors, experts, mentors, and fellow entrepreneurs Additional topics include financial projections, product/technology development, legal issues for startups, and entrepreneurial marketing tactics. Students must prepare and submit original feasibility summaries prior to the application deadline. During the course, students will expand these summaries into full business plans, and will be required to present their ventures multiple times to venture capital investors, entrepreneurs, and startup mentors. Students interested in careers in: startups, technology, business, consulting, and management are encouraged to take this course. Enrollment by permission based on the feasibility summary application. This course is not open to MBA students.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20340 if BUSN 34104 Special Topics in Entrepreneurship: Developing a New Venture (New Venture Challenge) taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20160. Accounting for Entrepreneurship. 100 Units.
This course provides the core set of tools needed to effectively provide the accounting functions for private, entrepreneurial companies. The course follows the life-cycle of a company that begins life as a start-up, and the course covers the accounting-related financial metrics that are needed by an entrepreneur. We will cover topics relevant to the earliest states of a business, such as setting up the initial accounting infrastructure, through to the companies exit to a strategic buyer, a private equity firm or an IPO.
Prerequisite(s): This course is not open to MBA students. Booth Book Fee may be assessed. Cannot enroll in BUSN 20160 if BUSN 30121 Accounting for Entrepreneurship: From Start-Up through IPO taken previously.

Finance

BUSN 20410. Corporation Finance. 100 Units.
This course provides you with an understanding of major decisions made by corporate financial managers and to familiarize you with the tools used to make these decisions. The first part of the course covers methods used to value investment opportunities. Particular attention is given to discounted cash flow valuation, including the methods of weighted average cost of capital (WACC) and adjusted present value (APV). The second part of the course focuses on issues of corporate financial structure. The focus will be on the choice of financing through equity, debt and other types of securities and on payout policies through dividends. Specialized topics, such as mergers and acquisitions and corporate hedging will be covered as time permits.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20410 if BUSN 35200 Corporation Finance taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge
BUSN 20400. Investments. 100 Units.
This course offers the financial theory and quantitative tools necessary for understanding how stock, bond, and option prices are determined, and how financial assets are used for investment decisions. Topics covered include the following: the term structure of interest rates; portfolio selection based on mean-variance analysis; models of risk and return (including the CAPM and multifactor models); performance evaluation; market efficiency and the random walk hypothesis; asset pricing anomalies and behavioral finance; derivative security pricing (including options, futures, forwards, and swaps); and international investment. This course is not open to MBA students.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20400 if BUSN 35000 Investments taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

Management
BUSN 20702. Managerial Decision Making. 100 Units.
This course is designed to make you a better decision maker. Good decision makers know how to recognize decision situations, then how to represent the essential structure of the situations, and how to analyze them with the formal tools from decision theory. But, perhaps more important, they need to be able to think effectively about the inputs into a decision analysis, whether to trust the analysis, and how to use the outputs to guide actions by themselves and their firms. And, maybe most important of all, they need to know how to make effective, unaided intuitive decisions, and to recognize the limits on their intuitive skills. This course will move back and forth between formal, optimal models and behavioral, descriptive models to help you understand and improve your native decision making abilities.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20702 if BUSN 38002 Managerial Decision Making taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20710. Behavioral Economics. 100 Units.
Behavioral economics applies psychological insights to economic markets and decision making. In this class, we will discuss the recent theoretical and empirical advances that have been made in this increasingly important field of economics. Being thoughtful about the role of psychology can lead to a greater understanding of how the economy works.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20710 if BUSN 38120 The Study of Behavioral Economics taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20701. Managing in Organizations. 100 Units.
Business transactions commonly take place among people. Understanding the factors that determine people's actions and interactions is therefore a critical prerequisite for being successful in the work environment. This course is about managing people - oneself and others. Using a combination of lectures, discussions, and group activities, the course offers an introduction to theory and research in the behavioral sciences. Its primary goal is to develop conceptual frameworks that help students to understand and manage effectively their own work settings.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20701 if BUSN 38001 Managing in Organizations taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

Marketing
BUSN 20600. Marketing Management. 100 Units.
The objective of the course is to provide an introduction to marketing strategy. The course develops a common framework (3Cs/4Ps) to analyze real world problems presented in business cases and synthesize recommendations addressing strategic marketing issues. Numerous tools that are used to support the framework are also introduced. GOALS: 1. Introduce marketing strategy and the elements of marketing analysis or business situation analysis: Customer analysis, Company analysis, and Competitor analysis (3Cs). 2. Develop familiarity with tactical use of elements of the marketing mix - product policy, pricing, promotion, and placement/distribution (4 Ps) - in a manner consistent with marketing analysis and strategy. 3. Integrate elements of the framework prescriptively into real world business situations. 4. Provide exposure to business case analysis and critical thinking common in case based business classes. FORMAT: Approximately half of each class is discussion of business cases. Remainder of the class is dedicated to the presentation and discussion of theories, concepts, analytical techniques and empirical findings useful in marketing management. Study groups of 4 to 5 students will work on exercises and brief in-class presentations using tools from lectures. Students will also write-up (typically 1 to 2 pages long) several cases individually using a format provided in class. Content includes some light quantitative work. This course is not open to MBA students.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20600 if BUSN 37000 Marketing Strategy taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge
BUSN 20610. Pricing Strategy. 100 Units.
This course blends marketing analytic frameworks, marketing strategy & microeconomic theory, and data to formulate actionable pricing strategies. Students will learn how to coordinate pricing decisions with the rest of the marketing value proposition. Numerous pricing structures are developed in the course, along with their microeconomic foundations. Students will learn the underlying theory for each pricing structure, along with the practical considerations for implementation.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20610 if BUSN 37202 Pricing Strategies taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20620. Data Science for Marketing. 100 Units.
Marketing decisions in the era of big data are increasingly based on a statistical analysis of large amounts of transaction and customer data that provides the basis for profitability and ROI predictions. The goal of this class is to introduce modern data-driven marketing techniques and train the students as data scientists who can analyze data and make marketing decisions using some of the state-of-the-art tools that are employed in the industry. We will cover a wide range of topics, including demand modeling, the analysis of household-level data, customer relationship management (CRM) and database marketing, and elements of digital marketing. The focus throughout is on predicting the impact of marketing decisions, including pricing, advertising, and customer targeting, on customer profitability and the return on investment (ROI) from a customer interaction.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20620 if BUSN 37105 Data Science for Marketing Decision Making taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

Operations
BUSN 20500. Operations Management. 100 Units.
This core course focuses on understanding levers for structuring, managing, and improving a firm's recurring business processes to achieve competitive advantage in customer responsiveness, price, quality, and variety of products and services. These levers are broadly applicable to service firms, for example banks, hospitals, and airlines, as well as to traditional product-based firms. Processes within firms, as well as between firms, i.e. supply chains, are explored. The fundamental principles underlying state-of-the-art practices, such as Lean, Mass Customization, and Time-Based Competition, are explored so that students learn to critically evaluate these and other operational improvement programs. Students learn the basics of how to manage the operations of a firm, and how operations issues affect and are affected by the many business decisions they will be called upon to make or recommend in their careers. As such, this course is essential to students aspiring to become consultants, entrepreneurs, or general managers. A working knowledge of operations is also indispensable to those interested in marketing, finance, and accounting, where the interface between these functions and operations is critical. Finally, an understanding of how firms become market leaders through operations is important in investment careers. This course is not open to MBA students.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20500 if BUSN 40000 Operations Management: Business Process Fundamentals taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20510. Managerial Decision Modeling. 100 Units.
This course is designed to sharpen students' analytical skills and elucidate quantitative modeling as an aid in managerial decision-making. The course teaches various ways to frame, set up and solve managerial questions about resource allocation, revenue management, finance, marketing, operations, risk analysis, data analysis, and forecasting using Microsoft Excel, as well as various tools and add-ins. The course will introduce various modeling frameworks and analytical tools in optimization, simulation, and data analysis. Students in this course will become proficient in formulating relevant managerial questions in the language of optimization and simulation modeling, as well as in solving the resulting problems using the frameworks covered in the course and interpreting the results. The course involves hands-on active learning through in-class cases and examples, homework and term project which applies the tools and modeling frameworks learned in the course to a business problem.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20510 if BUSN 36106 Managerial Decision Modeling taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

Statistics
BUSN 20800. Big Data. 100 Units.
Big Data is a course about data mining: the analysis, exploration, and simplification of large high-dimensional datasets. Students will learn how to model and interpret complicated ‘Big Data’ and become adept at building powerful models for prediction and classification. Techniques covered include an advanced overview of linear and logistic regression, model choice and false discovery rates, multinomial and binary regression, classification, decision trees, factor models, clustering, the bootstrap and cross-validation. We learn both basic underlying concepts and practical computational skills, including techniques for analysis of distributed data. Heavy emphasis is placed on analysis of actual datasets, and on development of application specific methodology. Among other examples, we will consider consumer database mining, internet and social media tracking, network analysis, and text mining.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20800 if BUSN 41201 Big Data taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge
BUSN 20810. Machine Learning. 100 Units.
Students will learn about state-of-the-art machine learning techniques and how to apply them in business related problems. Techniques will be introduced in the context of business applications and the emphasis will be put on how machine learning can be used to create value and provide insights from data. First, and the biggest, part of the class will focus on predictive analytics. Students will learn about decision trees, nearest neighbor classifiers, boosting, random forests, deep neural networks, naïve Bayes and support vector machines. Among other examples, we will apply these techniques to detecting spam in email, click-through rate prediction in online advertisement, image classification, face recognition, sentiment analysis and churn prediction. Students will learn what techniques to apply and why. In the second part of the class, students will learn about unsupervised techniques for extracting actionable patterns from data. Examples include clustering, collaborative filtering, probabilistic graphical modelling and dimension reduction with applications to customer segmentation, recommender systems, graph and time series mining, and anomaly detection.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20810 if BUSN 41204 Machine Learning taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20820. Financial Econometrics. 100 Units.
This course covers a variety of topics in financial econometrics. The topics covered are of real-world, practical interest and are closely linked to material covered in other advance finance courses. Topics covered include ARMA models, volatility models (GARCH), factor models, models for time varying correlations, analysis of panel data, cointegration models for long-run co-movement between prices and models for transactions data and the analysis of transactions cost.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20820 if BUSN 41203 Financial Econometrics taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

Strategy and the Business Environment
BUSN 20900. Competitive Strategy. 100 Units.
The course applies microeconomics (including elements of price theory, game theory, and industrial organization) to analyze decisions firms face in business environments. There will be specific focus on strategic decisions and the factors that influence firms’ competitive advantages. Class time will be devoted to lectures and case discussions. Topics covered include sources of competitive advantage, scope of the firm, efficient performance, pricing, entry and exit, vertical structure, and network externalities.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20900 if BUSN 42001 Competitive Strategy taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge

BUSN 20230. International Financial Policy. 100 Units.
This course will help students develop an understanding of issues in international macroeconomics that are important for investors and managers operating in the global marketplace. It will cover theories of the determination of exchange rates and interest rates, the management of foreign exchange risk, international capital flows, debt and currency crises, international monetary and exchange rate regimes, the roles of the international financial institutions in developing countries, and other characteristics of international financial markets.
Prerequisite(s): This course is not open to MBA students. Cannot enroll in BUSN 20230 if BUSN 33502 International Financial Policy taken previously. Booth Book Fee may be assessed. Refer to FAQ webpage for registration and schedule details: https://tinyurl.com/y8wz3oge
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

- Times was used instead of Trajan.
- Times was used instead of Palatino.

The editor may contact Leepfrog for a draft with the correct fonts in place.