

# Economics (BA): Business Analytics Concentration

All economics students complete core courses in microeconomics and macroeconomics, as well as specialized elective courses in labor economics, industrial organization, game theory, international economics, econometrics and finance. Poole's undergraduate economics program gives students the quantitative tools and critical thinking skills that prepare them for post-graduate study or careers in business, finance, government, public policy and more. What sets NC State's economics major apart is the training in analytical methods, and focus on economic theory and business skills, to provide students opportunities in many career paths.

Business Analytics is the process of collecting, cleaning, analyzing, and visualizing data to inform business decisions. It is a rapidly growing field, as businesses are increasingly relying on data to drive their operations and strategies. The Business Analytics concentration at NC State University is designed to prepare students for careers in this exciting and in-demand field. Students in the concentration will learn how to use a variety of tools and techniques to collect, clean, analyze, and visualize data. They will also learn how to communicate their findings to business stakeholders in a clear and concise way.

The concentration's curriculum is designed to give students a strong foundation in the following areas: Data management and governance, Data mining, machine learning, and artificial intelligence in business, Statistical analysis, Data visualization, and Business intelligence. The concentration also offers a variety of elective courses that allow students to focus on specific areas of business analytics, such as marketing analytics, financial analytics, and operations analytics.

## Economics Department

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Website (<https://poole.ncsu.edu/economics/>)

## Denis Pelletier

Department Head and Professor  
Department of Economics

## Plan Requirements

Overall GPA *for all courses* attempted at NC State must be 2.0 or higher; and  
Overall GPA *for all EC and ECG* courses attempted at NC State must be 2.0 or higher

Code	Title	Hours
<b>Major Requirements</b>		
M 100	Personal and Professional Identity Development	1
MIE 201	Introduction to Business	3
ACC 210	Concepts of Financial Reporting	3
EC 205	Fundamentals of Economics	3
or EC 201	Principles of Microeconomics	

or ARE 201	Introduction to Agricultural & Resource Economics	
EC 301	Intermediate Microeconomics	3
EC 302	Intermediate Macroeconomics	3
EC 351	Econometrics I	3
EC 490	Research Seminar in Economics	3

## Business Analytics

BUS 340	Information Systems Management	3
BUS 351	Introduction to Business Analytics	3

## Economics Electives

400/500 Level Econ Electives (p. 2)	6
300/400/500 Level EC Electives (p. 2)	6

## Humanities and Social Sciences

Acad Writing and Research (p. 3) <sup>1</sup>	4
Select one of the following:	3

COM 110	Public Speaking	
COM 112	Interpersonal Communication	
COM 211	Argumentation and Advocacy	

GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )	3
Select one of the following:	3

ENG 331	Communication for Engineering and Technology	
ENG 332	Communication for Business and Management	
ENG 333	Communication for Science and Research	

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	6
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GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )	3
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## Mathematical and Natural Sciences

GEP Natural Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/</a> )	7
Select one of the following:	3

MA 131 or MA 141 are encouraged for students who qualify and aspire to take additional calculus. For students completing the MA 141/241/242 sequence, one credit hour of MA 141 will count as free elective credit, MA 241 will count as free elective credit and MA 242 will substitute for MA 114.	
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MA 121	Elements of Calculus	
MA 131	Calculus for Life and Management Sciences A	
MA 141	Calculus I	

MA 114	Introduction to Finite Mathematics with Applications	3
or MA 242	Calculus III	

BUS/ST 350	Economics and Business Statistics	3
or ST 312	Introduction to Statistics II	
or ST 370	Probability and Statistics for Engineers	
or ST 372	Introduction to Statistical Inference and Regression	

ST 307	Introduction to Statistical Programming- SAS	1
or ST 308	Introduction to Statistical Programming - R	

## Interdisciplinary Perspectives

GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )	2
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## Physical Education

GEP Health and Exercise Studies (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/>) 2

#### Corequisites

GEP Global Knowledge (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/>) (verify requirement)

GEP Foundations of American Democracy (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-fad/>) (verify requirement)

#### Concentration

BUS 440 Database Management 3

BUS 458 Analytics: From Data to Decisions 3

Concentration Electives (DSA courses may count for a max of 6 units) 9

BUS 428	Financial Analytics	
BUS 429	Financial Modeling	
BUS 459	Business Analytics Practicum	
BUS 462	Marketing Research	
BUS 469	Digital Marketing Practicum <sup>4</sup>	
BUS 470	Operations Modeling and Analysis	
BUS 476	Decision Modeling and Analysis	
ACC 440	Enterprise Resource Planning Systems: Implementation, Risk, and Analytics	
ACC 411	Business Valuation	
ACC 459	Analytics in Accounting and Finance	
MIE 437	People Analytics <sup>4</sup>	
DSA 205	Data Communication	
DSA 225	Data Science for Social Good	
DSA 240	Measuring Success	
DSA 405	Data Wrangling and Web Scraping	
DSA 406	Exploratory Data Analysis for Big Data	
DSA 410	Data Internship Preparation for Social Impact	
DSA 412	Exploring Machine Learning	
DSA 295	Introductory Special Topics in Data Science <sup>5</sup>	
DSA 495	Special Topics in Data Science <sup>5</sup>	

#### Free Electives

Free Electives (12 Hr S/U Lmt) <sup>2,3</sup> 22

**Total Hours** 120

<sup>1</sup> C- or better

<sup>2</sup> Students should consult their academic advisors to determine which courses fill this requirement.

<sup>3</sup> Free Electives: Some courses will not count as free electives, such as FL 101 or 105 (in the language in which proficiency requirement is met), or MA 101, 101, 103, 105. (12 hours of free electives may be taken for credit only.)

<sup>4</sup> Course project must be approved by concentration contact for the course to count.

<sup>5</sup> DSA 295 and 495 classes require permission from the concentration contact to fulfill this requirement.

## 400/500 Level Econ Electives

Code	Title	Hours
ECG 515	Environmental and Resource Policy	3
ECG 528	Options and Derivatives Pricing	3
ECG 530	Topics in Labor Economics	3
ECG 537	Health Economics	3
ECG 540	Economic Development	3
ECG 548	International Economics	3
ECG 561	Applied Econometrics I	3
ECG 562	Applied Econometrics II	3
ECG 563	Applied Microeconometrics	3
ECG 590	Special Economics Topics	1-6
FIM 528	Options and Derivatives Pricing	3
MA 528	Options and Derivatives Pricing	3
MBA 528	Options and Derivatives Pricing	3
ST 561	Applied Econometrics I	3

#### Econ Electives II A

EC 404	Money, Financial Markets, and the Economy	3
EC 410	Public Finance	3
EC 413	Industrial Organization	3
EC 431	Labor Economics	3
EC 437	Health Economics	3
EC 449	International Finance	3
EC 451	Econometrics II	3
EC 468	Game Theory	3
EC 474	Economics of Financial Institutions and Markets	3
EC 490	Research Seminar in Economics	3
EC 495	Special Topics in Economics	1-6
EC 498	Independent Study in Economics	1-6

## 300/400/500 Level EC Electives

Code	Title	Hours
<b>Econ Electives I</b>		
ARE 336	Introduction to Resource and Environmental Economics	3
EC 336	Introduction to Resource and Environmental Economics	3

#### Econ Electives I A

ARE 336	Introduction to Resource and Environmental Economics	3
EC 305	A Closer Look at Capitalism	3
EC 336	Introduction to Resource and Environmental Economics	3
EC 348	Introduction to International Economics	3
EC 351	Econometrics I	3

#### Econ Electives II

ECG 515	Environmental and Resource Policy	3
ECG 528	Options and Derivatives Pricing	3
ECG 530	Topics in Labor Economics	3
ECG 537	Health Economics	3
ECG 540	Economic Development	3
ECG 548	International Economics	3

ECG 561	Applied Econometrics I	3
ECG 562	Applied Econometrics II	3
ECG 563	Applied Microeconometrics	3
ECG 590	Special Economics Topics	1-6
FIM 528	Options and Derivatives Pricing	3
MA 528	Options and Derivatives Pricing	3
MBA 528	Options and Derivatives Pricing	3
ST 561	Applied Econometrics I	3

**Econ Electives II A**

EC 404	Money, Financial Markets, and the Economy	3
EC 410	Public Finance	3
EC 413	Industrial Organization	3
EC 431	Labor Economics	3
EC 437	Health Economics	3
EC 449	International Finance	3
EC 451	Econometrics II	3
EC 468	Game Theory	3
EC 474	Economics of Financial Institutions and Markets	3
EC 490	Research Seminar in Economics	3
EC 495	Special Topics in Economics	1-6
EC 498	Independent Study in Economics	1-6

**Acad Writing and Research**

Code	Title	Hours
<b>Acad Writing Research</b>		
ENG 101	Academic Writing and Research	4
FLE 101	Academic Writing and Research	4
<b>Transfer Sequence</b>		
ENG 202	Disciplinary Perspectives in Writing	3
ENG 1GEP	Course ENG 1GEP Not Found	3

**First Year****Fall Semester**

		Hours
M 100	Personal and Professional Identity Development	1
ENG 101	Academic Writing and Research (or GEP Natural Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/</a> ) with Lab) <sup>1</sup>	4
MA 121	Elements of Calculus <sup>2</sup>	3
or MA 131	or Calculus for Life and Management Sciences A	
or MA 141	or Calculus I	
MIE 201	Introduction to Business	3
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
Free Elective		3
FL Proficiency		0

**Hours** 15**Spring Semester**

MA 114	Introduction to Finite Mathematics with Applications	3
or MA 242	or Calculus III	

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
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ENG 101	Academic Writing and Research (or GEP Natural Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/</a> ) with Lab) <sup>1</sup>	4
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EC 205	Fundamentals of Economics	3
or EC 201	or Principles of Microeconomics	
or ARE 201	or Introduction to Agricultural & Resource Economics	

ACC 210	Concepts of Financial Reporting	3
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Global Knowledge		0
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**Hours** 16**Second Year****Fall Semester**

EC 301	Intermediate Microeconomics	3
COM 110	Public Speaking	3
or COM 112	or Interpersonal Communication	
or COM 211	or Argumentation and Advocacy	
ST 350	Economics and Business Statistics	3
BUS 340	Information Systems Management	3
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )		2
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1

**Hours** 15**Spring Semester**

EC 302	Intermediate Macroeconomics	3
EC 351	Econometrics I	3
BUS 351	Introduction to Business Analytics	3
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )		3
ST 307	Introduction to Statistical Programming-SAS	1
or ST 308	or Introduction to Statistical Programming - R	

**Hours** 16**Third Year****Fall Semester**

Economics Elective (p. 1)		6
BUS 440	Database Management	3
ENG 331	Communication for Engineering and Technology	3
or ENG 332	or Communication for Business and Management	
or ENG 333	or Communication for Science and Research	
Free Electives		3

**Hours** 15**Spring Semester**

Economics Elective (p. 1)		3
BUS 458	Analytics: From Data to Decisions	3

GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )	3
Free Electives	6
<b>Hours</b>	<b>15</b>
<b>Fourth Year</b>	
<b>Fall Semester</b>	
Economics Elective (p. 1)	3
Concentration Electives	6
Free Elective	6
<b>Hours</b>	<b>15</b>
<b>Spring Semester</b>	
EC 490 Research Seminar in Economics	3
Concentration Elective	3
Free Electives	4
GEP Natural Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-natural-sciences/</a> )	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> ENG 101 must be completed with "C-" or better.

<sup>2</sup> MA 131 or MA 141 are encouraged for students who qualify and aspire to take additional calculus. For students completing the MA 141/241/242 sequence, one credit hour of MA 141 will count as free elective credit, MA 241 will count as free elective credit and MA 242 will substitute for MA 114.

## GPA Graduation Requirements

- Overall GPA *for all courses* attempted at NC State must be 2.0 or higher; and
- Overall GPA *for all EC and ECG* courses attempted at NC State must be 2.0 or higher

## Career Opportunities

An undergraduate degree in economics has long served as the foundation for advanced professional degrees in law and business, graduate study in economics, as well as jobs in business, industry and government.

### Career Titles

- Actuary
- Administrative Service Manager
- Business Professor
- Community Outreach Manager
- Compensation Administrator
- Compensation Specialist
- Customer Service Supervisor
- Economics Professor
- Economist
- Employment Administrator
- Environmental Economists
- Environmental Research Analyst
- Equal Opportunity Representative
- Event / Convention Planner
- Financial Analyst

- Financial Examiner
- Financial Planner
- Fundraising Manager
- Government Budget Analyst
- Government Service Executives
- Insurance Claim Examiner
- Intelligence Specialist (Government)
- Internal Auditor
- Investment Fund Managers
- Management Analyst
- Market Research Analyst
- Marketing Managers
- Occupational Analyst
- Operations Research Analyst
- Personnel Administrator
- Product Planner
- Public Relations Manager
- Public Relations Specialist
- Retail Buyer
- Retail Sales Department Supervisor
- Social and Community Service Managers
- Sociologist
- Survey Researchers
- Tax Assessor
- Transportation Planners
- Urban and Regional Planner

## Learn More About Careers

NCCareers.org (<https://nccareers.org/>)

Explore North Carolina's central online resource for students, parents, educators, job seekers and career counselors looking for high quality job and career information.

Occupational Outlook Handbook (<https://www.bls.gov/ooh/>)

Browse the Occupational Outlook Handbook published by the Bureau of Labor Statistics to view state and area employment and wage statistics. You can also identify and compare similar occupations based on your interests.

Career One Stop Videos (<https://www.careeronestop.org/>)

View videos that provide career details and information on wages, employment trends, skills needed, and more for any occupation. Sponsored by the U.S. Department of Labor.

Focus 2 Career Assessment (<https://careers.dasa.ncsu.edu/explore-careers/career-assessments/>) (NC State student email address required)  
This career, major and education planning system is available to current NC State students to learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. An NC State email address is required to create an account. Make an appointment with your career counselor (<https://careers.dasa.ncsu.edu/about/hours-appointments/>) to discuss the results.

Focus 2 Apply Assessment (<https://www.focus2career.com/Portal/Register.cfm?SID=1929>) (Available to prospective students)

A career assessment tool designed to support prospective students in exploring and choosing the right major and career path based on your

unique personality, interests, skills and values. Get started with Focus 2 Apply and see how it can guide your journey at NC State.

American Economic Association (<https://www.aeaweb.org/students/Careers.php>)