



**DEPARTMENT OF AGRICULTURAL  
ECONOMICS & ECONOMICS**

# ***PROGRAM GUIDE***

**AGRICULTURAL BUSINESS | ECONOMICS | FINANCIAL ENGINEERING  
M.S. IN APPLIED ECONOMICS | GRADUATE CERTIFICATE IN APPLIED ECONOMICS**

# Mountains & Minds

**Situated in the Gallatin Valley, rimmed by snow-covered peaks, Bozeman offers year-round adventure.**

**Our department contains unlimited possibilities for student-faculty collaboration, in-depth learning, and professional growth.**

*At Montana State, you can...*



**take your dog for a hike up  
Drinking Horse trail**

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**then meet up with classmates  
for a review session.**



## **CONNECT WITH US ON SOCIAL MEDIA!**

Follow us on Instagram, Facebook, and Twitter to receive department updates. Connect with us on LinkedIn to join the DAEE student-alumni professional network. It's a great way to stay engaged and informed!



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# DAEE

## *Fast Facts*



**18:1**

student/faculty ratio

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**≈300**

full-time students

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**50+**

courses

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**93**

degrees conferred  
in 2021

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**22**

professors

---



**27**

peer-reviewed,  
academic  
publications in 2021

---



**\$9.9 million**

research grants  
awarded in 2021

---



**A+**

in historical heritage.  
Linfield Hall is part of  
the original 1907  
Montana Ag College.

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# Why I Chose My Major



## **Erin Brush | Agricultural Business, Class of '22**

Hometown: Norris, MT

Agribusiness gave me a background in agricultural marketing, policy, and finance, so I could help farmers and ranchers with risk management and political protection.



## **Joshua Lester | Financial Engineering, Class of '22**

Hometown: Belgrade, MT

I became incredibly fascinated by the program due to its rigor and multidisciplinary nature. It combined all three of my interests—engineering, economics and computer science—into one neat package.



## **Monica Martinez | Economics, Class of '21**

Hometown: West Valley City, UT

The Economics program showed me how our everyday decisions can impact society and the world around us. I loved the diversity of classes and the close connections with each of my professors.



## **Ian Callen | M.S. in Applied Economics, Class of '22**

Hometown: Maple Valley, WA

I chose the Applied Economics program at Montana State because of the excellent faculty research and the high level of faculty-student collaboration.



# Agricultural Business

*Making sustainable business choices—from the small family farm to the USDA.*

**Curious how crops from a field in Manhattan, Montana make it to grocery stores in Manhattan, New York? Want the skills to run a cooperative or take over the family ranch?** The Agricultural Business major at MSU is designed to help students gain the economic, agricultural, and business skills to make informed decisions while operating agricultural enterprises. We offer two concentrations to fit varying needs and interests.



# Our Programs Prepare You for Success

The **Agribusiness Management** concentration teaches how to apply economic and business principles to the organization, operation and management of agricultural enterprises.



Graduates of this concentration successfully work for agribusiness and credit institutions, such as:

- ▶ Northwest Farm Credit
- ▶ Archer Daniels Midland
- ▶ USDA Farm Service Agency
- ▶ Columbia Grain Company

The **Farm and Ranch Management** concentration teaches how to manage farms, ranches and similar agricultural enterprises. You will graduate prepared to make the best decisions regarding production, crop and animal management, marketing, finance, and business organization.



Graduates of this concentration successfully operate farms and ranches, such as:

- ▶ Waterloo Land & Cattle
- ▶ M&M Cattle Ranch
- ▶ Judith Basin Ag



## Not sure which program is right for you? Let's talk.

We'd be glad to answer your questions and help you decide which program best fits your goals. Call us at 406-994-3702 or schedule a time to meet at [ageconadvising@montana.edu](mailto:ageconadvising@montana.edu).



# Concentration in Agribusiness Management

Average Starting Salary  
**\$48K**  
2019

Average Overall Salary  
**\$59K**  
2022

Job Openings 2020-2030  
**85K**  
U.S. Bureau of  
Labor Statistics

Follow the QR code  
for more detailed  
major and minor  
requirements:



*Our graduates, 2018-2019*

*MSU Career Destinations, 2020*

*All levels of experience across the USA*

*Payscale*

The concentration in Agribusiness Management prepares you to make best decisions regarding production, management of crops and animals, marketing, finance, and business organization. Required classes develop your skills in multiple departments, including Animal & Range Sciences and Accounting. Electives give you the flexibility to pursue specific interests.

## *Required Classes\**

- ANSC 100: Intro to Animal Science
- ECNS 101: Economic Way of Thinking
- AGED140: Leadership Development for Ag
- BIOB 110: Plant Science
- M 161: Survey of Calculus
- AGED 105: Microcomputers in Agriculture or BMIS 211: Data Analytics I

Choose one of the following:

- CHMY121: Intro to General Chemistry,
- BIOB 160: Principles of Living Systems, or
- BIOB 170: Principles of Biological Diversity

**100  
Level**

\*This list does not include University Core. Undergraduates must complete 27-30 credits of core classes outside of their major.

- ECNS 202: Principles of Macroeconomics
- ECNS 204: Microeconomics
- ACTG 202: Principles of Managerial Accounting
- ACTG 201: Principles of Financial Accounting
- STAT 216: Introduction to Statistics
- ENSC 245: Soils

Choose one of the following:

- BMGT 205: Prof Business Communication
- WRIT 201: College Writing II
- WRIT 221: Intermediate Tech Writing

**200  
Level**

- AGBE 321: Economics of Agricultural Marketing
- AGBE 345: Agricultural Finance & Credit Analysis
- ECNS 301: Intermediate Micro with Calc
- ECNS 309: Managerial Economics
- ECNS 303: Intermediate Macro with Calc
- AGBE 341: Farm & Ranch Management
- AGBE 337: Agricultural Law
- ECNS 313: Money & Banking

**300  
Level**

- AGBE 451: Economics of Ag Policy
- AGBE 421: Advanced Ag Marketing  
or AGBE 445: Agribusiness Management

**400  
Level**

### *Directed Major Electives*

Students must take at least one elective. A sample of these classes is presented below:

- AGBE 315: Ag in a Global Context
- AGBE 353: Cooperative Business Principles & Practice
- BMGT 335: Management & Organization
- ECNS 310: Health Economics
- ECNS 314: International Economics
- ECNS 316: Economics of Crime & Risky Behaviors
- ECNS 317: Economic Development
- ECNS 320: Public Finance
- ECNS 332: Economics of Natural Resources
- ECNS 432: Economic Policy Evaluation
- ECNS 451: Behavioral & Experimental Economics

## *Skills Gained*

- **Marketing**
- **Finance**
- **Management**
- **Communication**
- **Quantitative Analysis**
- **Law**
- **Accounting**

## *Popular Minors*

- **Accounting**
- **Finance**
- **Animal Science**
- **Economics**

# Concentration in Farm & Ranch Management

Average Starting Salary  
**\$43K**  
2019

Average Overall Salary  
**\$52K**  
2022

Job Openings 2020-2030  
**85K**  
U.S. Bureau of  
Labor Statistics

*Our graduates, 2018-2019*

*MSU Career Destinations 2020*

*All levels of experience across the USA*

*Payscale*

The concentration in Farm & Ranch Management prepares you to successfully own and operate a farm or ranch. Required classes allow you to form tight-knit friendships within the major as you gain skills in multiple departments, including Animal & Range Sciences, Chemistry, and Biology.

## *Required Classes\**

Choose three of the following:

- CHMY 121: Intro to General Chemistry,
  - CHMY 123: Intro to Organic Chemistry
  - CHMY 141: College Chemistry I
  - CHMY 143: College Chemistry II
  - BIOB 110: Plant Science
  - BIOB 160: Principles of Living Systems
  - BIOB 170: Principles of Biodiversity
  - ENSC 245: Soils
- 
- ECNS 101: Economic Way of Thinking
  - WRIT 101W: College Writing I

**100  
Level**

Follow the QR code  
for more detailed  
major and minor  
requirements:



\*This list does not include University Core. Undergraduates must complete 27-30 credits of core classes outside of their major.



- AGED 140: Leadership Development for Ag
- M 161: Survey of Calculus or M171: Calculus I
- AGED 105: Microcomputers in Agriculture or BMS 211 Data Analytics I

**100  
Level**

- ECNS 202: Principles of Macroeconomics
- ECNS 204: Microeconomics
- ACTG 201: Principles of Financial Accounting
- ACTG 202: Principles of Managerial Accounting
- STAT 216: Introduction to Statistics or BIOB 318: Biometry

**200  
Level**

Choose one of the following:

- BMGT 205: Prof Business Communication
- WRIT 201: College Writing II
- WRIT 221: Intermediate Tech Writing

- AGBE 321: Economics of Agricultural Marketing
- AGBE 345: Agricultural Finance & Credit Analysis
- ECNS 301: Intermediate Micro with Calc
- ECNS 309: Managerial Economics
- ECNS 303: Intermediate Macro with Calc
- AGBE 341: Farm & Ranch Management
- AGBE 337: Agricultural Law

**300  
Level**

Choose three of the following:

- AGSC 341: Field Crop Production
- AGSC 342: Forages
- ANSC 320: Animal Nutrition
- ANSC 265: Anatomy & Physiology of Domestic Animals
- BIOO 230: Identification of Seed Plants
- NRSM 101: Natural Resource Conservation
- NRSM 102: Montana Range Plants
- NRSM 240: Natural Resource Ecology

- AGBE 451: Economics of Ag Policy
- AGBE 421: Advanced Ag Marketing or AGBE 445: Agribusiness Management

**400  
Level**

## *Skills Gained*

- **Marketing**
- **Finance**
- **Business Management**
- **Agricultural Science**
- **Communication**
- **Analysis**
- **Law**

## *Popular Minors*

- **Accounting**
- **Finance**
- **Animal Science**
- **Economics**

# Popular Courses

## Ag in a Global Context

**AGBE 315:** Provides an integrated view of the science, technology, production practices, product handling, product marketing system, and end uses for agricultural products produced in Montana. The class consists of weekly lectures, culminating in a 1-2 week trip to another part of the world. Past destinations include Greece, Brazil, and China.

## Ag Marketing

**AGBE 421:** Covers economic analysis of current issues in agricultural marketing including market structure, risk, and efficiency; commodity promotion; futures and options markets; price forecasting; and retained ownership options.

## Ag Law

**AGBE 337:** Focuses on the application of general principles of law to ownership and operation of farming business and its relationship with other agribusiness firms, government agencies, and people.



▲ Visiting Shanghai on the 2019 Ag in a Global Context trip to China.

# Extracurricular Clubs

Agricultural Business students are active outside of the classroom, participating in a variety of clubs and organizations.

## Collegiate FFA

The object of the chapter is to support and promote the FFA, FFA activities, and agricultural education on local, state and national levels.



## Collegiate Stockgrowers

This club strives to be as involved with agriculture as possible. From inviting guest speakers to working on local ranches, it promotes education and leadership in all segments of the industry.



## Collegiate Cattlewomen

The Collegiate Cattlewomen's organization is open to women enrolled at MSU who are interested in the future of beef, agriculture, and their communities.



To discover more extracurricular opportunities, visit [ag.montana.edu/students](http://ag.montana.edu/students).



# Economics

*The timeless science of critical decision-making.*

**Why do gas prices always go up in the summer? What does it actually mean when the stock market takes a hit?** Our Economics program focuses on furthering students' understanding of current economic issues and their relationship to our social environment. Students study the science of critical decision-making and apply their knowledge to solve real-life problems in finance, public policy and international relations.

# Our Program Prepares You for Success

**Our B.S. in Economics** prepares you for a career in the financial, retailing, and industrial sectors of the economy. Our graduates also work in such diverse fields as actuarial science, education, journalism, banking, securities analysis, corporate finance, insurance, law, politics, and environmental regulation.

Graduate schools regard a degree in economics as excellent preparation for law school as well as a Ph.D in economics, international relations, public policy, or political science.

## Our graduates find rewarding jobs:

- ▶ Ph.D. candidate at the University of Chicago's Harris School of Public Policy
- ▶ Casualty Associate Broker at WTW
- ▶ J.D. candidate at the University of Montana
- ▶ Loan Administrator at Central Bank
- ▶ Investment Analyst at Klipbok LLC
- ▶ Financial Advisor at Equitable Advisors



**Minimum Wage and Poverty in Poor Countries**

by Emma Folkerts, Economics Department, University of Montana, Missoula, MT

### Introduction

The majority of people in the world live in a poor country. The country in which you are born is three times more important in determining your outcomes than the one you are borned in (Banerjee, D., & La Ferrara).

### Research Question

This research examines the impact of increased minimum wages on poverty in poor countries. Hypothesis: Higher wages in poor countries = a higher minimum wage reduces poverty.

What is the impact of a 1% increase in the minimum wage?

↑ WELFARE EMERGENCY

↓ UNEMPLOYMENT

↓ INEQUALITY

### background

**Theory**  
Economic theory predicts that minimum wages cause some employees to pay higher wages that they would otherwise, leading to unemployment in their study of Indonesia in 2008. It's finding was later confirmed that increases in minimum wage reduce extreme poverty and still poverty in formal sectors in which the minimum wage is enforced.

**Research**  
Research has found that increasing minimum wages has little to no effect on employment, but positive results are observed in the long run. There are conflicting findings whether increasing minimum wages impacts wages in informal sectors, and the effect of labor market rigidities that characterize low income countries (Santilli & Smith, 2008).

**data**  
**Sources**  
This research uses data on poverty from the United Nations Development Program and data on national minimum wage of 43 developing countries which includes monthly minimum wage data from the World Bank, International Labour Office, and other institutions. Over the 1980s, researchers track a variety of correlated data on economic growth in poor countries.

**Variables of Interest**  
The United Nations Development Program has great interests to measure the social economic development in the region, poverty rate, and the unemployment rate. The dependent variable is the poverty rate, and the independent variable is the minimum wage.

Minimum wage is measured by year, specifically the working poor, and poverty is measured by year, specifically the working poor.

### methodology

**Equation**  
Using the panel fixed effects regression model, I statistically regress national minimum wage on the three indicators of poverty. The underlying regression form: Difference in national minimum wage by country, as well as changes in the national minimum wage within a country from 1980 to 2007.

This regression accounts for different income states and patterns over time (panel data), and regression models in the economic panel data are suitable for the actual effect of minimum wage on poverty.

**Issues to ensure validity**  
Although fixed effects control for common variables in country and year, it is possible the findings are a result of correlation, not causation. This can come from factors like: 1. Omitted variables that are not being controlled for, 2. Simultaneous causation are more likely to exist unless policies and raise the minimum wage, and 3. Reverse causality of the 4. poor country may not reduce poverty spending by raising the wage.

If a country decided to enact poverty reducing policies while increasing the minimum wage, the findings would confound the effect of minimum wage policy. This can be solved by using fixed effects that fixed factors that countries may decide to increase the minimum wage to reduce poverty, while others do not focus on poverty reducing policies, leading to reverse bias.

**External validity**  
The Latin American and Caribbean region is more comparable to other poor and wealthy areas of the world. High amount of formal sector and informal sector working poverty rates for all regions. While the US and other wealthy countries have minimum of 10% and 20% minimum wage, the national minimum of the US is 7.25, which is not appropriate for the region, unless any other country.

**Function and variables**  
The function is:  $Y = \beta_0 + \beta_1 X + \beta_2 D + \beta_3 C + \beta_4 S + \beta_5 E + \beta_6 R + \beta_7 P + \beta_8 I + \beta_9 U + \beta_{10} T + \beta_{11} F + \beta_{12} S + \beta_{13} P + \beta_{14} I + \beta_{15} U + \beta_{16} T + \beta_{17} F + \beta_{18} S + \beta_{19} P + \beta_{20} I + \beta_{21} U + \beta_{22} T + \beta_{23} F + \beta_{24} S + \beta_{25} P + \beta_{26} I + \beta_{27} U + \beta_{28} T + \beta_{29} F + \beta_{30} S + \beta_{31} P + \beta_{32} I + \beta_{33} U + \beta_{34} T + \beta_{35} F + \beta_{36} S + \beta_{37} P + \beta_{38} I + \beta_{39} U + \beta_{40} T + \beta_{41} F + \beta_{42} S + \beta_{43} P + \beta_{44} I + \beta_{45} U + \beta_{46} T + \beta_{47} F + \beta_{48} S + \beta_{49} P + \beta_{50} I + \beta_{51} U + \beta_{52} T + \beta_{53} F + \beta_{54} S + \beta_{55} P + \beta_{56} I + \beta_{57} U + \beta_{58} T + \beta_{59} F + \beta_{60} S + \beta_{61} P + \beta_{62} I + \beta_{63} U + \beta_{64} T + \beta_{65} F + \beta_{66} S + \beta_{67} P + \beta_{68} I + \beta_{69} U + \beta_{70} T + \beta_{71} F + \beta_{72} S + \beta_{73} P + \beta_{74} I + \beta_{75} U + \beta_{76} T + \beta_{77} F + \beta_{78} S + \beta_{79} P + \beta_{80} I + \beta_{81} U + \beta_{82} T + \beta_{83} F + \beta_{84} S + \beta_{85} P + \beta_{86} I + \beta_{87} U + \beta_{88} T + \beta_{89} F + \beta_{90} S + \beta_{91} P + \beta_{92} I + \beta_{93} U + \beta_{94} T + \beta_{95} F + \beta_{96} S + \beta_{97} P + \beta_{98} I + \beta_{99} U + \beta_{100} T + \beta_{101} F + \beta_{102} S + \beta_{103} P + \beta_{104} I + \beta_{105} U + \beta_{106} T + \beta_{107} F + \beta_{108} S + \beta_{109} P + \beta_{110} I + \beta_{111} U + \beta_{112} T + \beta_{113} F + \beta_{114} S + \beta_{115} P + \beta_{116} I + \beta_{117} U + \beta_{118} T + \beta_{119} F + \beta_{120} S + \beta_{121} P + \beta_{122} I + \beta_{123} U + \beta_{124} T + \beta_{125} F + \beta_{126} S + \beta_{127} P + \beta_{128} I + \beta_{129} U + \beta_{130} T + \beta_{131} F + \beta_{132} S + \beta_{133} P + \beta_{134} I + \beta_{135} U + \beta_{136} T + \beta_{137} F + \beta_{138} S + \beta_{139} P + \beta_{140} I + \beta_{141} U + \beta_{142} T + \beta_{143} F + \beta_{144} S + \beta_{145} P + \beta_{146} I + \beta_{147} U + \beta_{148} T + \beta_{149} F + \beta_{150} S + \beta_{151} P + \beta_{152} I + \beta_{153} U + \beta_{154} T + \beta_{155} F + \beta_{156} S + \beta_{157} P + \beta_{158} I + \beta_{159} U + \beta_{160} T + \beta_{161} F + \beta_{162} S + \beta_{163} P + \beta_{164} I + \beta_{165} U + \beta_{166} T + \beta_{167} F + \beta_{168} S + \beta_{169} P + \beta_{170} I + \beta_{171} U + \beta_{172} T + \beta_{173} F + \beta_{174} S + \beta_{175} P + \beta_{176} I + \beta_{177} U + \beta_{178} T + \beta_{179} F + \beta_{180} S + \beta_{181} P + \beta_{182} I + \beta_{183} U + \beta_{184} T + \beta_{185} F + \beta_{186} S + \beta_{187} P + \beta_{188} I + \beta_{189} U + \beta_{190} T + \beta_{191} F + \beta_{192} S + \beta_{193} P + \beta_{194} I + \beta_{195} U + \beta_{196} T + \beta_{197} F + \beta_{198} S + \beta_{199} P + \beta_{200} I + \beta_{201} U + \beta_{202} T + \beta_{203} F + \beta_{204} S + \beta_{205} P + \beta_{206} I + \beta_{207} U + \beta_{208} T + \beta_{209} F + \beta_{210} S + \beta_{211} P + \beta_{212} I + \beta_{213} U + \beta_{214} T + \beta_{215} F + \beta_{216} S + \beta_{217} P + \beta_{218} I + \beta_{219} U + \beta_{220} T + \beta_{221} F + \beta_{222} S + \beta_{223} P + \beta_{224} I + \beta_{225} U + \beta_{226} T + \beta_{227} F + \beta_{228} S + \beta_{229} P + \beta_{230} I + \beta_{231} U + \beta_{232} T + \beta_{233} F + \beta_{234} S + \beta_{235} P + \beta_{236} I + \beta_{237} U + \beta_{238} T + \beta_{239} F + \beta_{240} S + \beta_{241} P + \beta_{242} I + \beta_{243} U + \beta_{244} T + \beta_{245} F + \beta_{246} S + \beta_{247} P + \beta_{248} I + \beta_{249} U + \beta_{250} T + \beta_{251} F + \beta_{252} S + \beta_{253} P + \beta_{254} I + \beta_{255} U + \beta_{256} T + \beta_{257} F + \beta_{258} S + \beta_{259} P + \beta_{260} I + \beta_{261} U + \beta_{262} T + \beta_{263} F + \beta_{264} S + \beta_{265} P + \beta_{266} I + \beta_{267} U + \beta_{268} T + \beta_{269} F + \beta_{270} S + \beta_{271} P + \beta_{272} I + \beta_{273} U + \beta_{274} T + \beta_{275} F + \beta_{276} S + \beta_{277} P + \beta_{278} I + \beta_{279} U + \beta_{280} T + \beta_{281} F + \beta_{282} S + \beta_{283} P + \beta_{284} I + \beta_{285} U + \beta_{286} T + \beta_{287} F + \beta_{288} S + \beta_{289} P + \beta_{290} I + \beta_{291} U + \beta_{292} T + \beta_{293} F + \beta_{294} S + \beta_{295} P + \beta_{296} I + \beta_{297} U + \beta_{298} T + \beta_{299} F + \beta_{300} S + \beta_{301} P + \beta_{302} I + \beta_{303} U + \beta_{304} T + \beta_{305} F + \beta_{306} S + \beta_{307} P + \beta_{308} I + \beta_{309} U + \beta_{310} T + \beta_{311} F + \beta_{312} S + \beta_{313} P + \beta_{314} I + \beta_{315} U + \beta_{316} T + \beta_{317} F + \beta_{318} S + \beta_{319} P + \beta_{320} I + \beta_{321} U + \beta_{322} T + \beta_{323} F + \beta_{324} S + \beta_{325} P + \beta_{326} I + \beta_{327} U + \beta_{328} T + \beta_{329} F + \beta_{330} S + \beta_{331} P + \beta_{332} I + \beta_{333} U + \beta_{334} T + \beta_{335} F + \beta_{336} S + \beta_{337} P + \beta_{338} I + \beta_{339} U + \beta_{340} T + \beta_{341} F + \beta_{342} S + \beta_{343} P + \beta_{344} I + \beta_{345} U + \beta_{346} T + \beta_{347} F + \beta_{348} S + \beta_{349} P + \beta_{350} I + \beta_{351} U + \beta_{352} T + \beta_{353} F + \beta_{354} S + \beta_{355} P + \beta_{356} I + \beta_{357} U + \beta_{358} T + \beta_{359} F + \beta_{360} S + \beta_{361} P + \beta_{362} I + \beta_{363} U + \beta_{364} T + \beta_{365} F + \beta_{366} S + \beta_{367} P + \beta_{368} I + \beta_{369} U + \beta_{370} T + \beta_{371} F + \beta_{372} S + \beta_{373} P + \beta_{374} I + \beta_{375} U + \beta_{376} T + \beta_{377} F + \beta_{378} S + 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# Economics

*Our graduates, 2018-2019*

*MSU Career Destinations 2020*

Average Starting Salary  
**\$50K**  
2019

Average Overall Salary  
**\$79K**  
2022

*All levels of experience across the USA  
Payscale*

Projected Growth 2020-2030  
**10-15%**  
U.S. Bureau of  
Labor Statistics

The Economics major prepares you to think critically, reason logically, and organize your thoughts in order to solve problems. In keeping with this objective, our program offers you flexibility in choosing courses to suit your particular interests.

## *Required Classes\**

- ECNS 101: Economic Way of Thinking
- M 161: Survey of Calculus or M 171 Calculus I
- ECNS 202: Principles of Macroeconomics
- ECNS 204: Microeconomics
- BMGT 205: Prof Business Communication or WRIT 221: Intermediate Tech Writing
- STAT 217: Intermediate Statistical Concepts
- ECNS 301: Intermediate Micro with Calc
- ECNS 303: Intermediate Macro with Calc

**100  
Level**

**200  
Level**

**300  
Level**

## *Skills Gained*

- **Critical Thinking**
- **Statistics**
- **Quantitative Analysis**
- **Communication**
- **Logic**
- **Problem-Solving**

\*This list does not include University Core. Undergraduates must complete 27-30 credits of core classes outside of their major.

- ECNS 432: Economic Policy Evaluation or ECNS 403: Intro to Econometrics

Choose one of the following:

- ECNS 403: Intro to Econometrics
- ECNS 432: Economic Policy Evaluation
- ECNS 451: Behavioral & Experimental Economics
- ECNS 460: Advanced Data Analytics in Economics
- ECNS 461: Financial Econometrics
- AGBE 421: Advanced Ag Marketing
- AGBE 445: Agribusiness Management
- AGBE 451: Economics of Ag Policy
- EFIN 401: Engineering & Economic Financial Management II
- EFIN 499: Financial Engineering Design Capstone

**400  
Level**

Follow the QR code for more detailed major and minor requirements:



### *Major & Supporting Area Electives*

Economics majors choose 4 major & 2 supporting area electives from an extensive list of nearly 50 classes. A sample of these classes is presented below.

- ECNS 310: Health Economics
- ECNS 312: Labor Economics
- ECNS 314: International Economics
- ECNS 316: Economics of Crime & Risky Behaviors
- ECNS 317: Economic Development
- ECNS 320: Public Finance
- ECNS 332: Economics of Natural Resources
- AGBE 321: Economics of Ag Marketing
- ACTG 201: Principles of Financial Accounting
- BMIS 211: Data Analytics I
- BGEN 361: Principles of Business Law
- M 172: Calculus II
- M 221: Intro to Linear Algebra

### *Popular Minors*

- Mathematics
- Statistics
- Finance

### *Advanced Option*

Current advanced MSU undergraduates have the option to complete an accelerated **Graduate Certificate in Applied Economics** at the same time as their undergraduate degree.

For more information, see p. 30.



## Popular Courses

### Intro to Econometrics

**ECNS 403:** The senior capstone course for the economics major. With a focus on estimating economic relationships and conducting hypothesis testing, it utilizes cutting-edge statistical software packages and real data to apply economic methods to problems in business, economics, and public policy.

### Behavioral & Experimental Economics

**ECNS 451:** An introduction to behavioral economics, a growing field which uses insights from psychology to improve economic models of behavior.

### International Economics

**ECNS 314:** A survey of international economic theory and policy. Major concepts explored are comparative advantage, impacts of tariffs, exchange rates, and international payments.

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## Coming Soon...

### Environmental Economics & Policy Concentration



**What is the significance of water compacts between the state and the Confederated Salish and Kootenai tribes? How can we promote economic growth in the face of climate change?**

The Environmental Economics & Policy option within the Economics major will train you to apply economic theory to the analysis of environmental and natural resource policy issues by mixing economics classes with interdisciplinary electives in Environmental Sciences, Ecology, Political Science, and Geography.

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**The U.S. Department of Labor reports that the median salary in the field of Environmental Scientists and Specialists is over \$76,000 per year.**

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# Academic Employment Opportunities

Are you struggling in class? Get help from your peers.

Are you an economics whiz? Get paid to help others.



## Peer Leaders

Our department offers a unique leadership opportunity for top-performing students.

**Peer Leaders** (pictured above) work closely with professors to teach weekly study labs of 5-20 students. They host office hours and answer questions on course material, gaining valuable professional experience as they help their peers.

## Teaching Assistants

**TAs** work under the supervision of a professor to grade exams and meet with students for one-on-one tutoring outside of class.

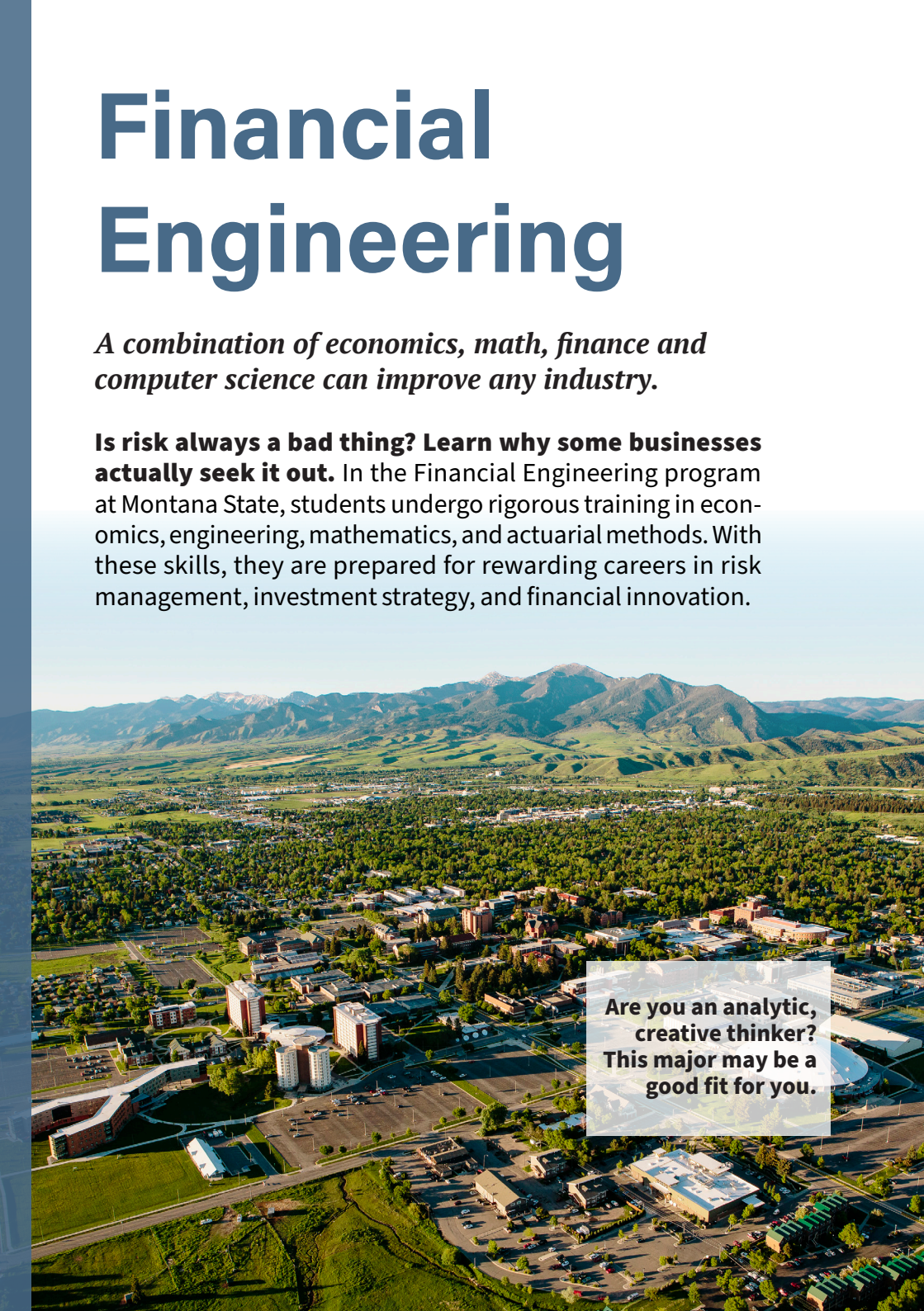
## Research Assistants

**RAs** work under the supervision of a professor to collect and analyze data and delve into the current economic literature, gaining hands-on research experience.

# Financial Engineering

*A combination of economics, math, finance and computer science can improve any industry.*

**Is risk always a bad thing? Learn why some businesses actually seek it out.** In the Financial Engineering program at Montana State, students undergo rigorous training in economics, engineering, mathematics, and actuarial methods. With these skills, they are prepared for rewarding careers in risk management, investment strategy, and financial innovation.



Are you an analytic,  
creative thinker?  
This major may be a  
good fit for you.



# Our Program Prepares You for Success

**Financial Engineers** combine economic theory and engineering problem-solving skills to assist businesses with risk management strategies, an increasingly important factor in today's globalized economy.

With this degree, you can work in banking, corporate finance, manufacturing, securities, insurance, agricultural business, and other industries that require sophisticated analysis skills.

Because of the rigorous training, demand for graduates is unusually high, with a forecasted annual growth rate of 5% to 10% over the next decade, according to the U.S. Bureau of Labor Statistics.

## Our graduates find rewarding jobs:

- ▶ Business Development Manager at onXmaps
- ▶ Commercial Credit Analyst at First Montana Bank
- ▶ Information Technology Contractor at Bitterroot Capital Advisors
- ▶ Actuarial Intern at Allianz Life
- ▶ Global Leadership Development Program Assistant at Advanced Sterilization Products



▲ 2021 Officers of the Financial Engineering Club

## Not sure which program is right for you? Let's talk.

We'd be glad to answer your questions and help you decide which program best fits your goals. Call us at 406-994-3702 or schedule a time to meet at [ageconadvising@montana.edu](mailto:ageconadvising@montana.edu).

# Financial Engineering

*Our graduates*

*MSU Career Destinations 2020*

Average Starting Salary  
**\$55K**  
2019

Average Overall Salary  
**\$95K**  
2022

Projected Growth 2020-2030  
**5-10%**  
U.S. Bureau of  
Labor Statistics

*All levels of experience across the USA*  
*Payscale*

The Financial Engineering major prepares you to manage a business's financial risks. In keeping with this objective, you will undergo training in calculus, statistics, financial economics, and software engineering.

## *Required Classes\**

- EFIN 101: Introduction to Financial Engineering
- CSCI 127: Joy & Beauty of Data
- CSCI 132: Basic Data Structures & Algorithms
- CHMY 141: College Chemistry I
- M171: Calculus I
- M172: Calculus II
- CLS 101: Knowledge & Community or COMX 111: Introduction to Public Speaking
- WRIT 101: College Writing I

**100**  
Level

- ECNS 251: Honors Economics
- PHSX 220: Physics I with Calculus
- M 273: Multivariable Calculus
- M 221: Introduction to Linear Algebra
- M 274: Introduction to Differential Equations
- CSCI 232: Data Structure & Algorithms

**200**  
Level

Follow the QR code  
for more detailed  
major and minor  
requirements:



\*This list does not include University Core. Undergraduates must complete 27-30 credits of core classes outside of their major.

- ECNS 301: Intermediate Micro with Calc
- ECNS 309: Managerial Economics
- ECNS 313: Money & Banking
- ECNS 345: Econ Org, Finance, & Credit or  
EGEN 325: Engineering Economic Analysis
- EIND 300: Engineering Management & Ethics
- EIND 354: Engineering Probability & Statistics
- EIND 364: Principles of Operations Research I
- EIND 373: Production Inventory Cost Analysis

**300  
Level**

- ECNS 460: Advanced Data Analytics in Econ
- ECNS 461: Financial Econometrics
- ECNS 403: Intro to Econometrics or EIND  
457: Regression & Multivariable Analysis
- EIND 464 Principles of Operations Research II
- EFIN 401: Engineering & Economic Financial  
Management II
- EFIN 499: Financial Engineering Capstone
- EIND 468: Managerial Forecasting & Decision  
Analysis

**400  
Level**

### *Technical & Professional Electives*

Financial engineering majors choose 3 technical & 2 professional electives from an extensive list of nearly 50 classes, spanning 5 departments. A sample of these classes is presented below.

- BFIN 460: Derivative Securities & Risk Management
- BMGT 405: Supply Chain Analytics
- ECNS 432: Economic Policy Evaluation
- CSCI 347: Data Mining
- CSCI 447: Machine Learning: Soft Computing
- ECNS 502: Macroeconomic Theory
- ESOF 422: Advanced Software Engineering
- M 441: Numerical Linear Algebra & Optimization
- EIND 422: Introduction to Simulation
- STAT 421: Probability Theory

### *Skills Gained*

- **Quantitative Analysis**
- **Computer Programming**
- **Problem-Solving**
- **Advanced Applied Mathematics**
- **Data Science**
- **Finance**

### *Popular Minors*

- **Mathematics**
- **Business Administration**
- **Agricultural Business**



# Popular Courses

## Engineering & Economic Financial Management II

**EFIN 401:** This second course in the financial engineering sequence teaches you to develop and manage financial strategies and tools in financial management. Topics include optimization, depreciation, risk management, asset value models, stress testing, credit derivatives, and regulation.

## Financial Engineering Design Capstone:

**EFIN 499:** This course centers around a comprehensive, open-ended team design project emphasizing the engineering and evaluation of financial instruments and decision support models. You will apply your skills in order to manage risk, create strategic business opportunities, lower costs, and access new markets.



▲ The Financial Engineering Club visits a local fintech firm.

# Graduate Programs

Undergraduate students or recent graduates who want to develop their quantitative skills can opt in to our **12-credit Graduate Certificate in Applied Economics**, which includes a year's worth of graduate-level coursework without the thesis requirement.

Our **Master of Science degree in Applied Economics** encourages students to develop their skills in economic analysis and to apply them to a wide array of real-world issues. During the two-year program, students tackle coursework in theory, data science, and econometrics and work closely with faculty members to write an intensive thesis. Our students graduate with strengthened coding, empirical, and communication skills and a portfolio of independent research.



# Graduate Certificate in Applied Economic Analysis



## Enhance Your Marketable Skills

Our Graduate Certificate in Applied Economic Analysis provides advanced training in econometrics and data analysis tools for those who want to go above and beyond during their time at MSU.

The certificate may be completed by advanced undergraduates or others wanting graduate-level skills without a two-year commitment. Credits earned in the certificate can also be transferred into the M.S., allowing students to fast-track into graduate school.

### Prerequisites:

- Intermediate Microeconomics or Macroeconomics Theory
- Econometrics or regression analysis equivalent
- Calculus I and II
- 3.25 GPA in required courses

## Program Requirements

**Each course is 3-credits. Students must complete 4 courses. Students may not double-count courses for undergraduate and graduate degrees.**

- ECNS 460 Advanced Data Analytics for Economics
- ECNS 561 Econometrics I
- ECNS 562 Econometrics II
- Elective course: ECNS 501 Microeconomics Theory **or** ECNS 502 Macroeconomic Theory

### Still have questions? Let's talk.

We'd be glad to help you decide which program best fits your goals. Call us at 406-994-3702 or schedule a time to meet at [ageconadvising@montana.edu](mailto:ageconadvising@montana.edu).



# An Insider's Look

Graduate Certificate Students and first-year Master's students share many of the same classes and therefore develop similar skillsets.



**M.S. in Applied Economics Class of '23** ▲

## In my classes, I learned how to:

- ▶ Find, clean, and analyze economic data using programs like R, Stata, and SAS.
- ▶ Work closely with professors to develop educational material for classes.
- ▶ Use softwares such as LaTeX to create professional academic papers.

**“Students receive the full, dedicated attention of the scholars present here.”**

**Jadon Buzzard, Class of '23**  
Hometown: Joliet, Illinois

## I gleaned a core understanding of useful theoretical concepts, including:

- ▶ Preference relation theory, game theory, and auction theory.
- ▶ Estimation techniques (OLS, GLS, WLS, difference-in-differences, instrumental variables, regression discontinuity, Probit/Logit models).
- ▶ Key estimation concepts such as heteroskedasticity, bias, asymptotic bias & consistency, efficiency, maximum likelihood estimation, Wald tests.
- ▶ Macro growth models (Solow, Neoclassical, Overlapping Generations).

# M.S. in Applied Economics



▲ M.S. in Applied Economics Class of '22

**Increase Your Market Value:** Strong quantitative skills are valued in every industry. Undergo rigorous coursework to land a high-paying job as an analyst or data scientist.

**Get Paid to Learn:** Unlike many master's programs, the M.S. at Montana State offers funding to a majority of accepted applicants. Although the stipend amounts varies from year-to-year, it is commensurate with the cost of living. 70% of tuition is covered by a waiver.

**Prepare for a PhD:** If your aim is a PhD, this program will increase your chances of getting into a highly ranked school. First-year coursework bridges the gap between the undergraduate level and highly technical PhD coursework. The second year, students gain research experience by writing a thesis of publishable quality. During both years, students build relationships with faculty members who can communicate academic strengths in letters of recommendation.

# Further Education & Careers

Average Salary within 10 Years  
**100K**  
2022

Our **M.S. in Applied Economics** graduates embark on a wide range of careers. Nearly 58% are working in for-profit, 24% in academia, and 10% for government. Across all career paths, the estimated salary of alumni within 10 years of graduation ranges from \$60,000 to \$150,000 (Academic Analytics). The job market for economists is projected to grow at a rapid 10-15% from 2020-2030.

## Recent Job Placements Include:

- ▶ Data Scientist, Atrium
- ▶ Economist, Montana Department of Labor & Industry
- ▶ Project Analyst at Resource Innovations
- ▶ Economic Consultant at A2F Consulting LLC, Washington D.C.
- ▶ Principal Analytical Lead at Google
- ▶ Risk Officer at First Interstate Bank

## Recent Graduate Placements Include:

- ▶ Harvard Kennedy School Ph.D in Public Policy
- ▶ University of California-Davis Ph.D in Agricultural & Resource Economics
- ▶ Boston College School of Law



▲ **Hannah Wing**, Class of '22  
Hometown: Ann Arbor, MI  
Data Analyst at Proper Insurance

**Our program fosters collaborative research between students and faculty. Examples of recently published faculty-student papers include:**



**Read More!**

Eric Belasco and Mark Boyd (Class of 2019). "The impact of farm-level variables on federal crop insurance coverage selections" in the *Agricultural Finance Review*, 2022.

Nicole Hair, Anja Gruber (Class of 2017), and Carly Urban. "Personal belief exemptions for school-entry vaccinations, vaccination rates, and academic achievement" in the *Journal of Health Economics*, 2021.

Kate Fuller, Molly DelCurto (Class of 2020), and Jeff Mosley. "Animal Unit Month (AUM) Lease Rates" in *Montana Extension MontGuide*. 2021.



# M.S. in Applied Economics

## Program Requirements

The M.S. program in Applied Economics is an eighteen-month to two-year program combining two semesters of course work and the preparation and defense of a master's thesis.

During the first year in the Applied Economics program, students take a rigorous set of courses in microeconomic theory, macroeconomic theory, and econometrics. In the second year of the program, students select, research, write, and defend a thesis topic in collaboration with a faculty committee. The committee, particularly the committee chair, provides individualized guidance through the research process.

Year 1: Fall	Credits	
· ECNS 594 Math Camp	1	1st Sem
· ECNS 594 Seminar	1	
· ECNS 460 Advanced Data Analytics in Economics	3	
· ECNS 561 Econometrics I	3	
· ECNS 501 Microeconomic Theory I	3	
Year 1: Spring		2nd Sem
· ECNS 562 Econometrics II	3	
· ECNS 504 Microeconomic Theory II	3	
· ECNS 502 Macroeconomic Theory	3	
Year 2: Fall		3rd Sem
· ECNS 590 Master's Thesis	1-10	
· ECNS 569 Research Methodology	1	
· Advanced mathematics courses (optional)		
Year 2: Spring		4th Sem
· ECNS 590 Master's Thesis (as needed, if incomplete)	1-10	

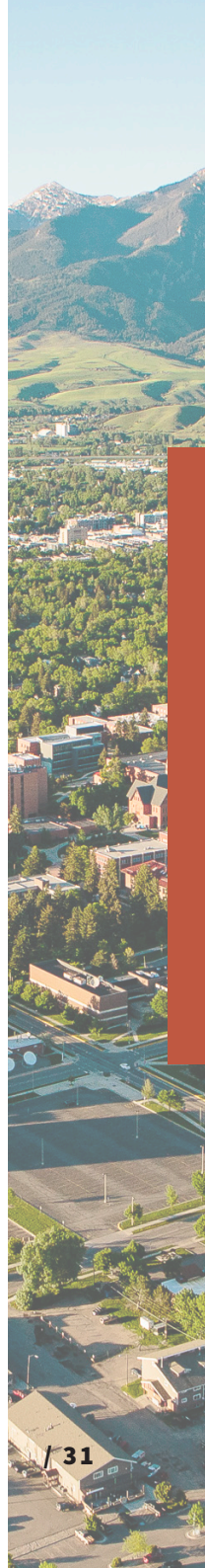


# Master's Thesis

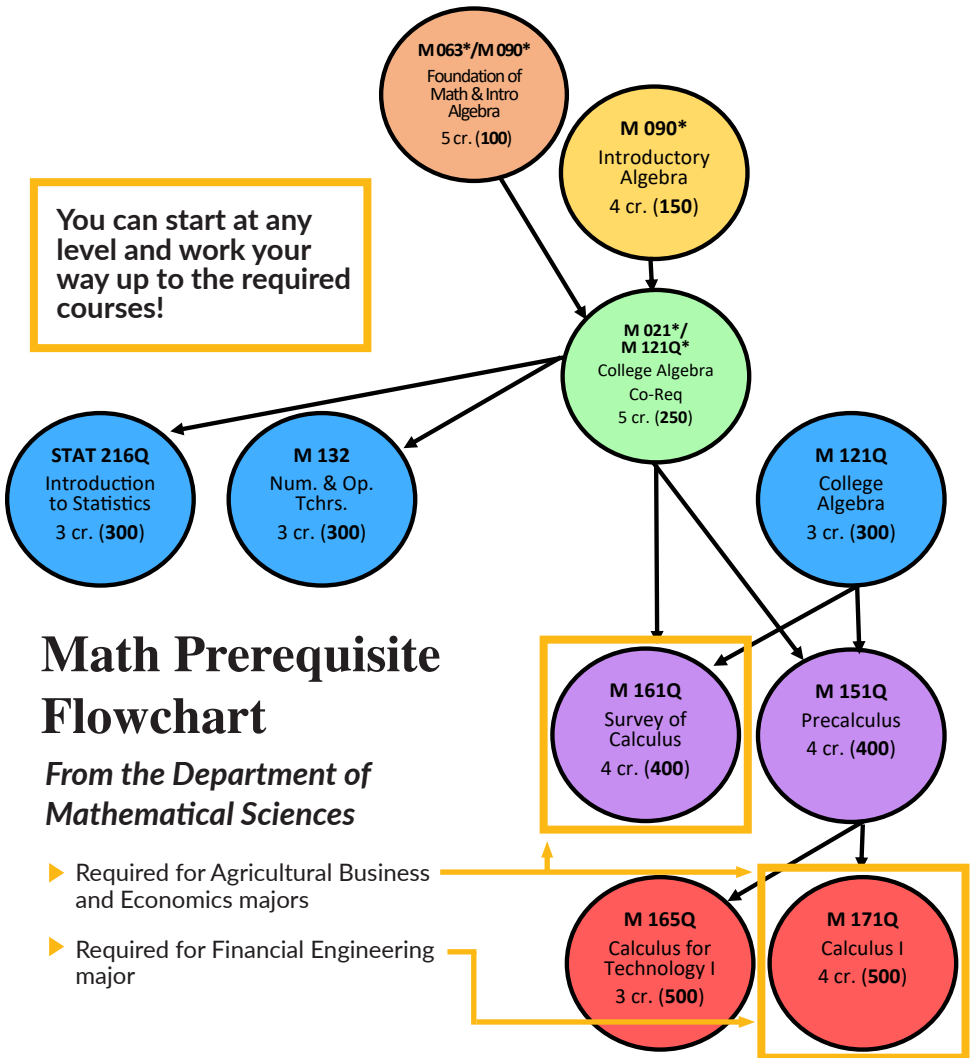
**The capstone of the M.S. in Applied Economics is an intensive research thesis. Many of our students present their theses at economic conferences, and some even achieve publication. Examples of recent theses include:**

- ▶ Ian Callen. "Putting the 'A' in AP: The Effect of Mandated Advanced Courses on AP Participation and Performance." 2022.
- ▶ Anthony Clark. "Efficient Market and Meme Stocks: Social Media and Volatility Spillover in the GME Short Squeeze." 2022.
- ▶ Rebecca Kaiser. "Retained Interest in Seedstock Bulls: A Transaction Cost Analysis." 2021.
- ▶ Scott Lantz. "The Effect of Rescinding Medical Marijuana Laws on Traffic Fatalities: A Synthetic Control Analysis." 2020.
- ▶ Conner McCollum. "Agricultural Conservation Easements and On-Farm Investment." 2022.
- ▶ Ridge Peterson. "The Effect of Local Alcohol Access on Lottery Participation." 2022.
- ▶ Willard Robinson. "Evaluating the Impact of Permanent School Closure: A Nationwide Analysis." 2022.
- ▶ Hannah Wing. "Does Temporary Land Retirement Promote Organic Adoption? Evidence from Expiring Conservation Reserve Program Contracts." 2022.

**Andrew Swanson**, Class of '19, presents his thesis, "Cost and Cooperation: The Effects of Section 199 on Basis at Grain Marketing Cooperatives" at the NCCC-134 conference in Minnesota. ▶



You can start at any level and work your way up to the required courses!



# Math Prerequisite Flowchart

From the Department of Mathematical Sciences

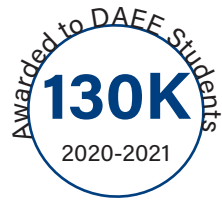
- ▶ Required for Agricultural Business and Economics majors
- ▶ Required for Financial Engineering major

	100	150	250	290	300	400	500
ACT alone	Below 17	17	21	22	23	25	27+
SAT alone	Below 460	460	530	540	560	590	640+
ACT and HS GPA		15-16 & 3.0+	20 & 3.5+	21 & 3.5+	21-22 & 3.5+	23-24 & 3.7+ & HS Precalc or Calculus	
SAT and HS GPA		380-450 & 3.0+	520 & 3.5+	530 & 3.5+	530-550 & 3.5+	560-580 & 3.7+ & HS Precalc or Calculus	
MPLEX or EdReady Placement	10	15	25	30	30	40	50

\* Indicates the class is being taught through Gallatin College



# Fund Your Education with DAEE \$cholarships



## **Agricultural Economics Memorial & Scholarship**

Awarded to deserving DAEE students.

## **Agricultural Economics Excellence**

Awarded to deserving DAEE students.

## **BMCF Agricultural Business Scholarship**

Awarded to deserving agricultural business students.

## **Ag Econ Opportunity Scholarship**

Awarded to students in non-traditional circumstances who require financial assistance. Circumstances may include dependent children, injury, and return to civilian life after extended military service, among others.

## **Dave Buschena Memorial Scholarship**

Awarded based on the results of the annual DAEE Undergraduate Scholarship Examination, in memory of Professor Dave Buschena.

## **Fred and Virginia Traeger Scholarship**

Awarded to agricultural business majors who graduated from a Montana high school.

## **James B. Johnson Memorial Scholarship**

Awarded to students majoring in economics in memory of Professor Emeritus Jim Johnson.

## **Joe Somers Memorial Scholarship**

Awarded to upperclassmen majoring in agricultural business.



Follow the QR code to see  
all these and more at  
**Cat \$cholarships.**



To learn more about the cost of attendance, visit [catalog.montana.edu/expenses](https://catalog.montana.edu/expenses).

# Our Faculty



**Dr. Mark Anderson**  
Health, Economic  
History



**Dr. Joe Atwood**  
Production, Ag  
Finance



**Dr. Eric Belasco**  
Ag Marketing, Risk  
Management



**Dr. Greg Gilpin**  
Crime, Education,  
Labor, Libraries



**Dr. Marsha Goetting**  
Estate Planning,  
Financial Management



**Dr. George Haynes**  
Small Business, Ag  
Policy



**Dr. Richard Ready**  
Economics of  
Ecosystem Services,  
Natural Resources



**Joel Schumacher**  
Personal Finance,  
Energy Economics,  
Local Beef Markets



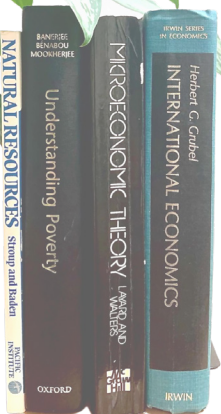
**Dr. Wendy Stock**  
Policy Analysis,  
Labor, Education



**Dr. Chris Stoddard**  
Labor, Public Finance,  
Education, Health



**Dr. Carly Urban**  
Public Economics,  
Political Economy





**Dr. Mariana Carrera**  
Behavioral Economics,  
Health



**Dr. Kate Fuller**  
Farm Management  
Decisions



**Dr. Andrew Hill**  
Labor, Education



**Dr. Brock Smith**  
Natural Resources,  
Development



**Dr. Isaac Swensen**  
Risky Behavior,  
Crime, Health



**Dr. Diane Charlton**  
Ag Production,  
Labor Migration,  
Development



**Dr. Justin Gallagher**  
Environmental and  
Public Economics



**Dr. Nick Hagerty**  
Natural Resources,  
International  
Development



**Dr. Melissa LoPalo**  
Public Economics,  
Labor, Development



**Dr. Yang Yu**  
Food Economics,  
Industrial Organization,  
Ag Marketing



**Dr. Danielle Carriere**  
Instructor



**Dr. Terry Schaplow**  
Instructor





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& Economics

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