
Morrison School of Agribusiness and Resource Management

www.east.asu.edu/msabr

Raymond A. Marquardt, PhD, Dean

PURPOSE

Located at the East campus, Morrison School of Agribusiness and Resource Management provides a variety of academic programs in Agribusiness. Agribusiness is the business of food and fiber production and the technology necessary to change a raw material (a commodity) or an idea into a new product or business for the world's consumers. Producing, financing, marketing, and providing food and fiber for the world amounts to more than one-half of the earth's global economy.

Agribusiness courses in the Morrison School are designed to prepare students for a wide range of employment opportunities in agribusiness and business. More than 20 percent of all jobs in the United States are agribusiness-related, and the industry is even more important internationally, with more than half of all jobs in developing countries related to food and fiber products. Population increases worldwide have led forecasters to predict that more than nine billion food and fiber consumers will be part of the global agribusiness system by the year 2050. Forecasts also estimate that, at that time, more than 20,000 agribusiness jobs will go unfilled due to a lack of skilled professionals.

The academic programs in Agribusiness are especially designed to meet the needs of the urban student who has little or no previous agriculture experience. An interest in plants, animals, or food can be the starting point for career development in agricultural industries or resource management. The undergraduate programs also provide the necessary training for students preparing to enter graduate degree programs.

The Morrison School is strategically positioned to offer some unique programs. The concentration in professional golf management provides a student with the opportunity to qualify for the Professional Golfers' Association certification program in addition to majoring in Agribusiness. Similarly, for individuals more interested in the development and management of golf and other turf facilities, the golf and facilities management concentration is well suited.

Food, its marketing and safety, is of paramount importance today and in the future. The Morrison School offers specific concentrations in both of these areas. Food and agribusiness marketing is one of the signature academic concentrations in the school. Food science and safety are emphases stressed in the food, agribusiness and consumer products marketing concentration.

The BS degree in Agribusiness with a concentration in professional golf management is accredited by the Professional Golfer's Association of America. For more information, write

PGA EDUCATION DEPARTMENT
100 AVENUE OF THE CHAMPIONS
PO BOX 109601
PALM BEACH GARDENS FL 33410

NATIONAL FOOD AND AGRICULTURAL POLICY PROJECT

The National Food and Agricultural Policy Project (NFAPP) constructs a 10-year baseline forecast for the fruit and vegetable produce industry and specific commodities, responds to congressional inquiries concerning policies affecting the fruit and vegetable industry, and publishes a monthly newsletter highlighting research efforts. Areas of study include domestic and international promotion of fruits and vegetables, trade and the impact of trade agreements, and crop insurance and risk management. For more information, call the director at 480/727-1124.

DEGREE PROGRAMS

The Morrison School offers a BS degree in Agribusiness with the following concentrations: agribusiness finance, food, agribusiness and consumer products marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, professional golf management, and preveterinary medicine.

For students holding an AAS degree, the school offers the Bachelor of Applied Science degree with concentrations in consumer products technology and food retail management. See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 532.

The school also offers the MS degree in Agribusiness with concentrations in agribusiness management and marketing, and food quality assurance. Students may select either a research-oriented program, which leads to the completion of a supervised thesis, or a program consisting of course work only (nonthesis option). All MS candidates in Agribusiness must complete a minimum of 36 semester hours.

ADMISSION

The Morrison School admits students to the BS degree programs who meet the undergraduate admission

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Agribusiness	BS	Agribusiness finance; food, agribusiness, and consumer products marketing; food science; general agribusiness; golf and facilities management; international agribusiness; management of agribusiness; preveterinary medicine; or professional golf management	Morrison School of Agribusiness and Resource Management
Applied Science	BAS	Consumer products technology or food retail management	Morrison School of Agribusiness and Resource Management

* If a major offers concentrations, one must be selected unless noted as *optional*.

requirements of Arizona State University; see “Undergraduate Admission,” page 66. Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

GRADUATION REQUIREMENTS

Agribusiness—BS

The completion of a minimum of 120 semester hours—including First-Year Composition, General Studies (see “General Studies,” page 92), and the school and concentration requirements—leads to the BS degree. Note that all three General Studies awareness areas are required. An overall GPA of 2.00 is required for graduation and students must have completed a minimum of 45 semester hours of upper-division credit. Also see special graduation requirements under “Preveterinary Medicine,” page 534.

Prerequisite Courses. Students who select the concentrations in agribusiness finance, food, agribusiness and consumer products marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, or professional golf management, must complete the following courses, some of which can also be used to meet university General Studies requirements:

ACC 230 Uses of Accounting Information I.....	3
ACC 240 Uses of Accounting Information II ¹	3
BIO 100 The Living World <i>SQ</i>	4
CHM 101 Introductory Chemistry <i>SQ</i> ²	4
ECN 111 Macroeconomic Principles <i>SB</i> ³	3
ECN 112 Macroeconomic Principles <i>SB</i>	3
ENG 301 Writing for the Professions <i>L</i>	3
MAT 210 Brief Calculus <i>MA</i> ²	3
Total	26

- ¹ This course is not required for the golf and facilities management concentration.
- ² This course is not required for the professional golf management concentration.
- ³ This course is not required for the golf and facilities management or professional golf management concentration.

Core Requirements. Agribusiness employers require their employees to possess a wide range of skills and com-

petencies. Rapid changes in information technology and the increasingly competitive food production and distribution sector mean that agribusiness needs graduates equipped to deal with these changes. The agribusiness core, required of all the concentrations, is designed to give students these skills. The core consists of courses in business principles—management, marketing, and finance—as well as in the fundamentals of agribusiness operations management.

AGB 100 Introduction to Agribusiness	3
AGB 161 Computer Applications for Agribusiness Industries <i>CS</i>	3
AGB 310 Agribusiness Management I	3
AGB 320 Agribusiness Marketing I.....	3
AGB 321 Agribusiness Marketing II ¹	3
AGB 332 Agribusiness Finance I.....	3
AGB 333 Agribusiness Finance II ²	3
AGB 360 Agribusiness Statistics <i>CS</i>	3
AGB 364 Agribusiness Technologies I.....	3
AGB 365 Agribusiness Technologies II ¹	3
AGB 410 Agribusiness Management II.....	3
AGB 414 Agribusiness Analysis <i>L</i>	3
Core total.....	36

- ¹ This course is not required for the professional golf management, golf and facilities management, or resource management concentrations.
- ² This course is not required for the golf and facilities management concentration.

Concentrations

After completing the required agribusiness core, students select a concentration in their area of interest. A concentration allows a student to select a series of courses that complement the agribusiness core, supplement the student’s desire to master another area of interest, and broaden career opportunities.

Agribusiness Finance Concentration. Agribusiness finance concentration graduates are expected to possess a broad knowledge of financial theory and practice as it pertains to the agribusiness sector. This will involve applying quantitative and computer-based analytical techniques to real-world agribusiness problems. Specific course content includes topics in financial management, financial markets, risk management, and the evaluation of financial assets and business alternatives.

Agribusiness Finance

AGB 431 Intermediate Agribusiness Financial Management.....	3
---	---

AGB 434 Agricultural Risk Management and Insurance	3
AGB 435 Agricultural Commodities	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Management of Agribusiness Concentration. Agribusiness managers encounter many problems and opportunities on a daily basis that are unique to the agribusiness sector. Students choosing this concentration develop skills in managing people, internal resources, and external relationships in an increasingly dynamic environment.

Management of Agribusiness

AGB 411 Agricultural Cooperatives	3
or AGB 480 Agribusiness Policy and Government Regulations (3)	
AGB 451 Management Science <i>CS</i>	3
AGB 481 Applied Microeconomics	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Food, Agribusiness and Consumer Products Marketing Concentration. Students in the food, agribusiness and consumer products marketing concentration develop critical skills relevant to dealing with firms involved in food, fiber, consumer products, and pharmaceutical manufacturing; distribution; and retailing. Students also learn about the relationship between input suppliers, commodity associations, and primary producers. To this end, food, agribusiness and consumer products marketing students are required to complete a series of courses that analyze the behavior and performance of both commodity and consumer food markets.

Food, Agribusiness and Consumer Products Marketing

AGB 422 Consumer Behavior	3
AGB 429 Marketing Research	3
AGB 435 Agricultural Commodities	3
or AGB 420 Food Marketing (3)	
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Food Science Concentration. The food science concentration focuses on both scientific and technical competency skills with an emphasis on food microbiology, food chemistry, biotechnology, mathematics, and statistics. This unique program prepares graduates for employment opportunities in the food, beverage, and dairy industries; regulatory agencies such as the FDA and USDA; international organizations such as FAO and WHO; and consumer organizations. In addition, graduates may choose to pursue advanced degrees.

Food Science

AGB 340 Food Processing	3
AGB 440 Food Safety	3
AGB 442 Food and Industrial Microbiology	4
AGB upper-division electives	7
Agribusiness core	36

Agribusiness prerequisite courses	26
Total	79

General Agribusiness Concentration. The general agribusiness concentration offers students a chance to build a broad perspective in the field of agribusiness. In an age of specialization, there remains a growing need for generalists. These individuals have mastered finance, marketing, management, and other technologies such as computers and statistics and are capable of demonstrating this mastery.

General Agribusiness

AGB 435 Agricultural Commodities	3
AGB electives	14
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

International Agribusiness Concentration. A student studying international agribusiness is typically preparing for a career with government agencies oriented toward international issues; programs of agribusiness for or in developing countries; U.S. agribusiness firms affected significantly by trade; or U.S.-based international agribusiness firms. This concentration requires a mastery of subjects in international trade, agricultural development, international policy, and global marketing practices and institutions.

International Agribusiness

AGB 450 International Agricultural Development <i>G</i>	3
AGB 452 International Agricultural Policy.....	3
AGB 454 International Trade	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Professional Golf Management Concentration. The Professional Golf Management (PGM) concentration, accredited by the Professional Golfer’s Association (PGA) of America, is specifically designed for students who aspire to become Class A PGA Professionals and work in management careers in the golf industry. Any student admitted to this program should be aware that membership in the PGA of America is restricted to U.S. citizens and resident aliens. PGM students complete the agribusiness core, which helps them develop the critical skills needed to manage complex organizations. In addition, the PGM concentration requires a minimum of 23 semester hours of golf-related curriculum, of which nine hours consist of hands-on internship experience at golf facilities. The remaining 14 semester hours include courses selected from the following areas: golf course operations, turf grass management, club fitting and repair, pro shop merchandising, movement analysis, sports psychology and equipment, mechanics and shop maintenance and repair. Students must complete all PGA membership requirements, including the PGA Playing Ability Test. All golf-related courses and internships are selected with the assistance of the PGM program director.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

Special class fees are in place to cover the cost of PGA books, seminars, and testing. The PGM program fee ensures all students will have access to the ASU/PGM Practice Facility, the PING Swing Analysis Lab, and a club repair room.

PGM Admission. To be admitted to the PGM program, students must meet a playing ability test. Call the PGM director at 480/727-1912 for more information.

Professional Golf Management

Agribusiness core.....	30
Agribusiness prerequisite courses.....	19
Professional golf management courses.....	14
Professional golf management internship.....	9
Total	72

Golf and Facilities Management Concentration. The Golf and Facilities Management (GFM) concentration is designed to prepare students for careers as golf course superintendents. Through the agribusiness core, students develop the critical skills needed to manage complex organizations. In addition, the GFM concentration requires a minimum of 25 semester hours of golf and facilities management-related curriculum, of which six hours consist of hands-on internship experience at golf courses. The remaining 19 semester hours include courses selected from the following areas: golf course operations, plants and landscaping, soils, irrigation and water management, fertilizers, pest control, turf grass management, mechanics and shop maintenance and repair. For more information, call the GFM program coordinator at 480/727-1256.

Golf and Facilities Management

Agribusiness core.....	27
Agribusiness prerequisite courses.....	17
Golf and facilities management courses.....	19
Internship.....	6
Total	69

Prerequisite Courses for Preveterinary Medicine. Students who select the preveterinary medicine concentration must take the following courses, some of which can also be used to meet the General Studies requirement.

ACC 230 Uses of Accounting Information I.....	3
BCH 361 Principles of Biochemistry.....	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics.....	4
CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
Choose between the course combinations below.....	4-8
CHM 231 Elementary Organic Chemistry <i>SQ</i> (3) ¹	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> (1) ¹	
or	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
ENG 301 Writing for the Professions <i>L</i>	3
MAT 210 Brief Calculus <i>MA</i>	3
MIC 205 Microbiology <i>SG</i> ²	3

MIC 206 Microbiology Laboratory <i>SG</i> ²	1
PHY 111 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ³	1
Upper-division AGB.....	6
Total	54-58

¹ Both CHM 231 and 235 must be taken to secure *SQ* credit.

² Both MIC 205 and 206 must be taken to secure *SG* credit.

³ Both PHY 111 and 113 must be taken to secure *SQ* credit.

Preveterinary Medicine. A student studying agribusiness can also be preparing for admission to a professional veterinary school. While completing the courses needed for acceptance into veterinary school, the student is broadening his or her career potential with agribusiness courses. The Agribusiness major provides knowledge of how to run a business or practice. In addition, should a preveterinary student decide not to apply to a veterinary school, this major provides alternative career paths into human or veterinary pharmaceutical industries or the food industry. This concentration permits students to complete the preveterinary requirements for entrance to professional veterinary school.

Preveterinary Medicine

Agribusiness core.....	21
AGB 310 Agribusiness Management I (3)	
AGB 320 Agribusiness Marketing I (3)	
AGB 332 Agribusiness Finance I (3)	
AGB 360 Agribusiness Statistics <i>CS</i> (3)	
AGB 364 Agribusiness Technologies I (3)	
AGB 365 Agribusiness Technologies II (3)	
AGB 414 Agribusiness Analysis <i>L</i> (3)	
Preveterinary medicine prerequisites.....	54-58
Total	75-79

Veterinary College Acceptance. A student who has been accepted to a school of veterinary medicine before he or she has earned a BS degree in the Morrison School may do so by completing a minimum of 30 semester hours at ASU and the General Studies requirement. Students must receive a written statement from the dean of the Morrison School giving senior-in-absentia privileges. A student is eligible to receive the BS degree after the ASU Office of the Registrar receives a recommendation from the dean of the veterinary professional school and a transcript indicating the student has completed the necessary semester hours commensurate with ASU graduation requirements.

Veterinary Medical Schools. There are 27 schools of veterinary medicine in the United States. Each school establishes specific prerequisites that are required for admission. Advisors in the Morrison School assist students in designing their class schedules to meet the requirements of the veterinary schools to which they plan to apply. Each school generally looks for courses in biology, chemistry, genetics, microbiology, organic chemistry, and physics. In addition to a science foundation, all students must meet the University General Studies requirement, and complete 45 semester hours of upper-division courses.

APPLIED SCIENCE—BAS

The Bachelor of Applied Science degree is a capstone degree for the Associate of Applied Science degree. The

BAS degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

BAS Degree Graduation Requirements

The BAS degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

AAS degree	60
Assignable credit.....	6
BAS core.....	16
Concentration.....	19
General Studies.....	19
<hr/>	
Total	120

General Studies Curriculum. The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L.....	3
MA.....	3
HU.....	3
HU or SB.....	3
SB.....	3
SG.....	4
<hr/>	
Total	19

Assignable Credit. Assignable credit allows space in the curriculum for prerequisite courses. The courses are determined by the student and advisor.

BAS Core

AGB 310 Agribusiness Management I.....	3
AGB 320 Agribusiness Marketing I.....	3
AGB 360 Agribusiness Statistics CS.....	3
AGB 414 Agribusiness Analysis L.....	3
AGB 460 Agribusiness Management Systems.....	3
<hr/>	
Total	15

Consumer Products Technology Concentration. Students in this concentration prepare for a career in the food and consumer products industries. Students learn to develop food, drug, cosmetic, and other consumer products and to ensure product safety and marketability by obtaining a thorough mastery of courses in product and package design, manufacturing, processing, and safety.

Consumer Products Technology

AGB 340 Food Processing.....	3
AGB 364 Agribusiness Technologies I.....	3
AGB 440 Food Safety.....	3
MET 341 Manufacturing Analysis.....	3
MET 494 ST: Consumer Manufacturing.....	3
MET 494 ST: Packaging Design.....	3
AGB elective.....	1
<hr/>	
Total	19

Food Retail Management Concentration. A student studying food retail management prepares for a career in the food marketing and distribution industries. Potential employers are food manufacturing and processing companies, distribution centers, wholesalers, and all types of food retailers, e.g., supermarkets, mass merchandisers, fast food outlets, restaurants, and direct marketers of food.

Food Retail Management

AGB 332 Agribusiness Finance I.....	3
AGB 340 Food Processing.....	3
AGB 420 Food Marketing.....	3
AGB 440 Food Safety.....	3
AGB 445 Food Retailing.....	3
AGB 484 Internship.....	1
AGB elective.....	3
<hr/>	
Total	19

Morrison School of Agribusiness and Resource Management

www.east.asu.edu/msabr

480/727-1585

WANNER, First Floor

Raymond A. Marquardt, Dean

Professors: Daneke, Edwards, Kagan, Marquardt, Seperich, Shultz, Thor

Associate Professors: Patterson, Raccach, Richards, Schmitz

Assistant Professors: Eaves, Hughner, Manfredo

Senior Lecturer: Lindley

AGRIBUSINESS (AGB)

AGB 100 Introduction to Agribusiness. (3)

fall

Overview of agribusiness industries and career opportunities.

AGB 161 Computer Applications for Agribusiness Industries. (3)

spring

Uses and integrates word processing, spreadsheets, and databases as tools for managing an agribusiness firm. Integrated lecture/lab.

General Studies: CS

AGB 171 Animal Science. (3)

spring

Comparative growth, development, and propagation of domestic animals.

AGB 191 First-Year Seminar. (1-3)

selected semesters

AGB 194 Special Topics. (1-4)

selected semesters

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

AGB 258 International Agribusiness. (3)

fall

Identifies and analyzes methods, problems, and future of international agribusiness operations. Emphasizes special problems associated with international agribusiness systems.

General Studies: G

AGB 271 Veterinary Medicine Today. (3)

spring

Introduces the role of the veterinarian as related to the fields of food supply and veterinary medicine.

AGB 294 Special Topics. (1–4)

selected semesters

AGB 310 Agribusiness Management I. (3)

fall

Principles of management, including planning, organizing, integrating, measuring, and developing people in agribusiness organizations.

AGB 311 Establishing an Agribusiness. (3)

fall

Opportunities and problems associated with new firm development in agribusiness. Business plan is written and presented orally.

AGB 320 Agribusiness Marketing I. (3)

fall and spring

Examines marketing strategy, focusing on the marketing mix (product, price, promotion, and place) in a dynamic socioeconomic environment. Prerequisites: ACC 230, 240; AGB 360; ECN 112.

AGB 321 Agribusiness Marketing II. (3)

fall and spring

Examines the food marketing system with emphasis on the marketing institutions, arrangements, and methods for basic commodities. Prerequisites: ACC 230, 240; AGB 360; ECN 112.

AGB 332 Agribusiness Finance I. (3)

fall and spring

Introduces concepts in agribusiness financial management: time value of money, risk and return, capital budgeting, and cost of capital. Prerequisites: ECN 111 and 112 (or their equivalents); introductory accounting.

AGB 333 Agribusiness Finance II. (3)

spring

Introduces financial markets and institutions. Interest rate determination, money and banking, equity markets, farm credit system, vendor financing. Prerequisites: ECN 111 and 112 (or their equivalents); introductory accounting.

AGB 340 Food Processing. (3)

fall

Introduces processed food quality assurance, statistical sampling, and inspection procedures. Prerequisite: AGB 364.

AGB 341 Food Analysis. (3)

selected semesters

Processing control and scientific instrumentation used in food quality assurance laboratories. Prerequisites: AGB 364; CHM 101.

AGB 355 Sustainable Agriculture Systems. (3)

fall and spring

Innovative developments in precision farming, irrigation, soils, tillage methods, machinery, and biotechnology in crop production.

AGB 360 Agribusiness Statistics. (3)

fall and spring

Statistical methods with applications in agribusiness and resource management. Prerequisite: college algebra.

General Studies: CS

AGB 364 Agribusiness Technologies I. (3)

fall

Examines methods of managing diverse crop and livestock enterprises with emphasis on growth, development, marketing, and loss prevention. Prerequisite: BIO 100.

AGB 365 Agribusiness Technologies II. (3)

fall

Biotechnology and other methods used in the production, processing, and distribution of food. Prerequisite: BIO 100.

AGB 370 Wildlife and Domestic Animal Nutrition. (3)

spring

Survey of nutritional needs of domestic and wild animals. Prerequisite: a General Studies SQ course.

AGB 371 Animal Genetics. (3)

fall

Principles of animal genetics, including heritable traits, chromosomal aberrations, population genetics, molecular genetics, and gene regulation. Prerequisites: BIO 187, 188.

AGB 394 Special Topics. (1–4)

selected semesters

AGB 410 Agribusiness Management II. (3)

spring

Principles of human resource management in agribusiness firms. Prerequisite: AGB 310.

AGB 411 Agricultural Cooperatives. (3)

spring

Organization, operation, and management of agricultural cooperatives.

AGB 414 Agribusiness Analysis. (3)

fall and spring

Analysis of agribusiness firm decisions in the ecological, economic, social, and political environments. Special emphasis on ethical issues surrounding food production and consumption.

General Studies: L

AGB 420 Food Marketing. (3)

spring

Food processing, packaging, distribution, market research, new food research and development, and social implications. Prerequisite: AGB 320.

AGB 422 Consumer Behavior. (3)

fall

Applies behavioral concepts in analyzing consumer food purchases and their implications for marketing strategies. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 424 Sales and Merchandising in Agribusiness. (3)

summer

Principles and techniques of selling and merchandising in the agricultural and food industries.

AGB 425 Agricultural Marketing Channels. (3)

fall

Operational stages of agricultural commodities in normal distribution systems and implementation of marketing strategies. Prerequisite: AGB 320.

AGB 429 Marketing Research. (3)

fall

Examines the marketing research process and its role in facilitating agribusiness decisions. Emphasizes problem identification, survey design, and data analysis. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 431 Intermediate Agribusiness Financial Management. (3)

spring

Comprehensive treatment of topics in financial management of agribusiness: capital structure, dividend policy, asset valuation, mergers and acquisitions, risk management. Prerequisites: AGB 332, 333.

AGB 433 Intermediate Agribusiness Financial Markets. (3)

spring

Role and function of agribusiness in U.S. financial system. Topics include rural banking, farm credit system, monetary policy, and federal reserve. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 434 Agricultural Risk Management and Insurance. (3)

fall

Strategies to manage agricultural price and business risk: derivatives, insurance, self-insurance, and public policy. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 435 Agricultural Commodities. (3)

fall and spring

Trading on futures markets. Emphasis on the hedging practices with grains and meats. Fee. Prerequisite: AGB 320.

AGB 436 Entrepreneurship and Financial Management of E-commerce. (3)

fall

Uses lectures, case studies, and business plans to highlight challenges of starting and running a small business. Lecture, seminar, case studies, computer labs.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

AGB 440 Food Safety. (3)

spring

Control, prevention, and prediction of microbial and chemical food-borne diseases. Prerequisite: AGB 442 or instructor approval.

AGB 441 Food Chemistry. (3)

spring

Biochemical and chemical interactions that occur in raw and processed foods. Prerequisites: CHM 115, 231.

AGB 442 Food and Industrial Microbiology. (4)

selected semesters

Food- and industrial-related microorganisms; deterioration and preservation of industrial commodities. Lecture, lab. Prerequisite: a course in microbiology with lecture and lab.

AGB 443 Food and Industrial Fermentations. (3)

spring

Management, manipulation, and metabolic activities of industrial microbial cultures and their processes. Prerequisite: AGB 442 or instructor approval.

AGB 445 Food Retailing. (3)

fall

Food retail management. Discusses trends, problems, and functions of food retail managers within various retail institutions. Lecture, case studies.

AGB 450 International Agricultural Development. (3)

fall

Transition of developing countries from subsistence to modern agriculture. Emphasis placed on implications for U.S. agribusiness working abroad.

General Studies: G

AGB 451 Management Science. (3)

fall

Focus on the construction, solution, and interpretation of quantitative models used for management decision making in agribusiness firms. Prerequisites: AGB 320, 360; ECN 112; MAT 117.

General Studies: CS

AGB 452 International Agricultural Policy. (3)

fall

Use of international trade theory to analyze the effects of government policies, trade agreements, and exchange rates on agribusiness. Prerequisite: ECN 112.

AGB 454 International Trade. (3)

spring

International practices in trading of agribusiness, technology, and resource products and services.

AGB 455 Resource Management. (3)

spring

Explores differences between societal and individual valuations of natural resources and considers public policy versus market-based solutions to environmental concerns. Prerequisite: ECN 112.

General Studies: SB

AGB 457 Resource Policy and Sustainability. (3)

fall

Considers the evolution of policy design, focusing on how resource and environmental concerns have affected agricultural development and trade policies. Prerequisite: ECN 112.

AGB 460 Agribusiness Management Systems. (3)

spring

Development and use of decision support systems for agribusiness management and marketing.

AGB 463 Electronic Commerce Applications. (3)

fall

Overview of electronic commerce technology with introduction to basics of design, control, operation, organization, and emerging issues. Pre- or corequisite: AGB 460 (or its equivalent).

AGB 465 Organic Farming Technologies. (3)

fall and spring

Organic farming methods, including certification, soil fertility, planting, integrated pest management, irrigation, cover crops, rotations, and marketing farm products.

AGB 470 Comparative Nutrition. (3)

selected semesters

Effects of nutrition on animal systems and metabolic functions. Prerequisite: CHM 231.

AGB 471 Diseases of Domestic Animals. (3)

spring

Discusses animal welfare, mechanisms of disease development, causes and classification of diseases, disease resistance, and common zoonoses. Prerequisite: BIO 188.

AGB 473 Animal Physiology I. (3)

selected semesters

Control and function of the nervous, muscular, cardiovascular, respiratory, and renal systems of domestic animals. Prerequisites: BIO 188; CHM 113.

AGB 479 Veterinary Practices. (3)

fall and spring

Observation of and participation in veterinary medicine and surgery supervised by local veterinarians. Prerequisite: advanced preveterinary student.

AGB 480 Agribusiness Policy and Government Regulations. (3)

spring

Development and implementation of government food, drug, pesticide, and farm policies and regulations that affect the management of agribusiness.

AGB 481 Applied Microeconomics. (3)

fall and spring

Emphasizes application of the theory of the firm, theory of exchange, and consumer theory.

AGB 484 Internship. (1–12)

fall and spring

AGB 492 Honors Directed Study. (1–6)

selected semesters

Topics may include the following:

- Recent Advances in Food Science. (1)

AGB 493 Honors Thesis. (1–6)

selected semesters

AGB 494 Special Topics. (1–4)

selected semesters

AGB 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Effective Consumer Response
Fee.
- Selling Today
Fee.

AGB 499 Individualized Instruction. (1–3)

selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PROFESSIONAL GOLF MANAGEMENT (PGM)

PGM 100 PGA/PGM Introduction. (2)

fall

Introduces the golf professional training program. Career enhancement, rules of golf, tournament operations, and playing professional development programs. Fee. Prerequisite: admission to PGM program.

PGM 110 Player Development I. (1)

fall and spring

Introductory instruction on golf game improvement to assist PGM students in preparation for Players Ability Test. Evaluation. Fee. Prerequisite: admission to PGM program.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

PGM 111 Player Development II. (1)

fall and spring

Instruction to assist PGM students in preparation for Players Ability Test with emphasis on full swing mechanics and practice plan development. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 112 Player Development III. (1)

fall and spring

Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 113 Player Development IV. (1)

fall and spring

Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 114 Player Development V. (1)

summer

Introductory instruction on golf game improvement to assist PGM students in preparation for Player Ability Test. Evaluation. Prerequisite: admission to PGM program.

PGM 120 Golf for Business and Life. (1)

fall and spring

Introduces nongolfing students to the game of golf. For beginners. Integrated lecture/lab.

PGM 130 PGA/PGM Level 1. (2)

fall

Focuses on golf professional training program and the completion of the PGA Level One experience kit. Fee. Prerequisite: PGM 100.

PGM 150 Teaching Golf I. (2)

fall and spring

Introduces golf instruction. Focus on fundamentals of golf swing and teaching techniques. Fee. Prerequisite: admission to PGM program.

PGM 166 Turf Equipment Management. (3)

spring

Introduces turf equipment used on golf courses. Instruction in maintenance, adjustment, and safety issues. Integrated lecture/lab.

PGM 194 Special Topics. (1–4)

selected semesters

PGM 200 PGA/PGM Level 2. (2)

fall

Focuses on golf professional training program and the completion of the PGA Level Two experience kit. Fee. Prerequisite: admission to PGM program.

PGM 250 Teaching Golf II. (1)

fall and spring

Communicating with student golfers, swing evaluation, key factors club fitting, developing a successful teaching practice. Prerequisite: admission to PGM program.

PGM 300 PGA/PGM Level 3. (1)

fall

Business planning and operations, business communications related to business of golf. Completion of the PGA Level Three experience kit. Fee. Prerequisite: admission to PGM program.

PGM 350 Teaching Golf III. (1)

fall and spring

Teaching swing concepts. Developing a teaching philosophy, analyzing flawed swing mechanics through video and swing analysis software. Prerequisite: admission to PGM program.

PGM 363 Landscape and Turf Irrigation. (4)

fall

Design, management, and maintenance of landscape and turf irrigation systems. Lecture, lab. Cross-listed as ABS 363. Credit is allowed for only ABS 363 or PGM 363. Fee.

PGM 367 Landscape Plants and Design. (3)

spring

Identification, design, and use of plants in urban landscapes. Lecture, lab. Cross-listed as ABS 362. Credit is allowed for only ABS 362 or PGM 367. Fee. Prerequisite: ABS 260 (or its equivalent).

PGM 400 GPTP IV. (1)

fall

Food and beverage control, supervision and delegation of golf facilities. Completion of the PGA Level Three experience kit. Prerequisite: admission to PGM program.

PGM 463 Golf and Sports Turf Management. (3)

fall

Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Cross-listed as ABS 463. Credit is allowed for only ABS 463 or PGM 463. Integrated lecture/lab.

PGM 466 Integrated Pest Control. (2)

fall and spring

Management of pests affecting golf turf and landscape plants. Structural Pest Control Board sprayer certification preparation offered during the semester.

PGM 484 Internship. (1–12)

selected semesters

PGM 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Food and Beverage
- Fee.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.



A consultant and a student discuss effective use of lighting on the airport lighting simulator.

Dave Tevis photo