COLLEGE OF AGRICULTURE

2010 through 2011 CATALOG

PURDUE UNIVERSITY

www.purdue.edu

Produced by Purdue Marketing and Media

College of Agriculture

2010 through 2011

Published by Purdue University
West Lafayette, Indiana

Contents

Purdue: A World of Possibilities

Consider the impact of Purdue University on your world!

Some of you are Purdue students, poised on the launch pad of your adult life. Others, high school students still trying to zero in on your career path and life mission. Consider looking at your future through the expansive and engaging field of vision Purdue offers in this increasingly global and technologically advanced world.

Telescopic View of Purdue

- Founded in 1869 as Indiana's land-grant university and named for benefactor John Purdue
- Ranks 22nd among the nation's public universities and 61st among all universities by *U.S.News & World Report* (2009)
- Among the largest universities in the United States with a state system-wide enrollment of more than 74,300 at four campuses and 10 Technology Statewide locations throughout Indiana; about 39,700 at the main campus in West Lafayette
- Ranks 9th in *SmartMoney* magazine's "payback" survey, quantifying the long-term value of a college education — or earnings compared to tuition investment (2009)
- Included in The Princeton Review 100 "best value" ranking for offering a high-quality education at a reasonable price (2009)
- Named among the top 20 by The Princeton Review in a variety of campus-life categories, including best athletics, best college newspaper, and best campus food (2009)

Discover the World at Purdue

- A world of choices: 200 majors
- Highly touted programs and graduates in the STEM disciplines (science, technology, engineering, math) and business, liberal arts, and agriculture; several interdisciplinary options
- Culturally diverse campus, with students from more than 125 countries and all 50 states
- Typically ranks No. 1 or No. 2 in international student enrollment among public institutions in the United States
- First university to have its own airport (1930); also the first university to establish a department of computer science (1962)
- Community service experiences available in 175 courses; Engineering Projects in Community Service (EPICS) founded at Purdue, now a popular program nationally
- Incredible research opportunities for students to learn from, and work with, world-renowned faculty in Discovery Park's enviable interdisciplinary centers and laboratory facilities in nanotechnology, biosciences, information technology, alternative fuels, and the study of learning
- Study Abroad programs in 45 countries
- Number of recognized student organizations: 850
- Member of the Big Ten Conference, noted for both academic excellence and competitive athletic programs
- Nationally recognized career preparation track via Professional Practice (co-op and internship programs)
- Some 700 companies recruit on campus, valuing the work ethic of Purdue's new graduates and alumni who have earned a degree that is respected around the world
- Median salary for graduates three years after graduation of $51,400; median salary 15 years after graduation of $90,500 (data from *SmartMoney* ranking, classes of 2005 and 1993)
- Living alumni network of 410,000 world-wide

Proven World Leader

- To date, 22 alumni chosen for space flight — headlined by Neil Armstrong and Gene Cernan, the first and last humans on the moon
- Two Purdue professors in three years received the World Food Prize, considered the Nobel Prize of Agriculture: Philip Nelson (2007) and Gebisa Ejeta (2009); Nelson developed aseptic storage and distribution of processed fruits and vegetables, and Ejeta's research increased sorghum production, which is one of the world's main cereal grains
- Early work by Purdue researchers led to the first successful transmission of a black-and-white television picture

- Purdue graduate Carol Morgan Pottenger, rear admiral in the U.S. Navy, is one of the first women selected for sea duty and the first woman to lead a combat strike group
- Boilermakers Len Dawson, Bob Griese, Hank Stram, and Rod Woodson are all enshrined in the Pro Football Hall of Fame
- Brian Lamb, who started public-affairs channel C-SPAN 30 years ago, is an alumnus
- Don Thompson, president of McDonald's Corp. USA, has a Purdue engineering degree
- More Forbes 800 corporate chief executive officers hold an undergraduate degree from Purdue than from any other public university
- Aviation pioneer Amelia Earhart was a career counselor to women students on campus; gift funds from the Purdue Research Foundation made possible the purchase of Earhart's "Flying Laboratory" used for her ill-fated around-the-world flight attempt
- Basketball coaching legend John Wooden, an Indiana native, led Purdue to the 1932 National Championship
- Orville Redenbacher, "the Popcorn King," was a Purdue graduate
- Purdue has graduated more women engineers than any other university, and one in 50 engineers in the United States is Purdue-trained

Academic programs at Purdue are organized within colleges and schools. A brief description of each college and school follows, but we encourage you to visit the Purdue Web site — www.purdue.edu. Plan to spend some time discovering Purdue. You'll find, in the online details, information about the University's academic programs and courses. We appreciate your interest and welcome your questions. You're invited to campus for the "real" Boilermaker experience. You'll see a galaxy of opportunities before you — paths similar to many Boilermakers whose impact has taken them to great heights around the world … and high above it!

College of Agriculture

Among the nation's highest ranked and most prestigious institutions, the college offers excellent teaching, research, extension, and international programs. More than 40 programs of study prepare life scientists, engineers, business representatives, producers, information specialists, and resource managers for professional careers in the world's food and natural resource systems. See www.ag.purdue.edu/oap.

College of Consumer and Family Sciences

The college, one of the largest and highest ranked of its kind in the nation, prepares men and women for careers related to the needs of families and consumers. Students can choose a Bachelor of Science degree program from 13 majors in the areas of family studies and child development, consumer sciences and consumer business, hospitality and tourism, nutrition, health and fitness, and education. The Department of Hospitality and Tourism Management also offers an associate degree program. See www.cfs.purdue.edu.

College of Education

The state-accredited and nationally ranked and accredited College of Education prepares outstanding teachers, instructional leaders, administrators, school counselors, counseling psychologists, curriculum specialists, teacher educators, and educational researchers for the essential roles they play in guiding the education of our youth. Through interdisciplinary instructional programs in teacher education, research in the educational process, and engagement with Indiana schools, College of Education graduates are well prepared for a rewarding career in education. The dedicated and experienced faculty members, some of whom are known internationally as experts in their fields, are respected leaders in a wide range of curriculum areas and are actively engaged in research. Together the students and faculty share a passion for learning, teaching, and changing the world. The college offers undergraduate and graduate degrees in a variety of disciplines. In addition to the teacher education programs offered by the College of Education, teacher preparation programs also are offered through other colleges and schools across campus. See www.education.purdue.edu.

College of Engineering

The College of Engineering is internationally known for the quality and scope of its programs. Students launch their careers with a common first-year program in the School of Engineering Education. Once they have completed that program, they choose from undergraduate curricula in aeronautics and astronautics, agricultural, biological, biomedical, chemical, civil, computer, construction engineering and management, electrical, industrial, interdisciplinary, materials, mechanical, or nuclear engineering. Every school within engineering offers graduate degree programs. See www.engineering.purdue.edu.

School of Health Sciences

The school offers a variety of human health-related study areas. Undergraduate programs include clinical laboratory science (medical technology), environmental health science, general health sciences, occupational health science (industrial hygiene), and radiological health science (health physics). The general health sciences major requires the selection of a concentration area in pre-medical, pre-dental, pre-occupational therapy, pre-physical therapy, pre-chiropractic, pre-optometry, pre-physician's assistant, or public health. Students completing these programs are prepared to enter the health-related job market or apply to the professional or graduate program of their choosing. At the graduate level, programs of study include health physics, medical physics, occupational and environmental health sciences, radiation biology, and toxicology. See www.healthsciences.purdue.edu.

College of Liberal Arts

The college offers essentially all of the traditional disciplines of the humanities, social and behavioral sciences, and creative arts. Majors and minors are available in the departments of anthropology, audiology and speech sciences, communication, English, foreign languages and literatures, health and kinesiology, history, philosophy, political science, psychological sciences, and sociology; and in the School of Visual and Performing Arts. Students can prepare themselves in more than 50 majors, including 16 undergraduate interdisciplinary programs. See www.cla.purdue.edu.

Krannert School of Management

Degree programs include accounting, management, industrial management, and economics. Accounting and management programs focus on finance, marketing, operations, human resources, and strategic planning. The industrial management program combines management and technical education with a manufacturing management, engineering, or science minor. The accounting program combines a management background with extensive education in accounting principles and practices. All programs include coursework in the arts, humanities, and international and cross-cultural aspects of modern business. See www.krannert.purdue.edu.

School of Nursing

The School of Nursing prepares students from diverse backgrounds for careers as professional nurses. The nationally accredited undergraduate program prepares a student for licensure as a registered nurse (R.N.). A diverse mix of liberal arts, science, and nursing courses gives students a scientific, multidisciplinary education. Small clinical classes give students practical experience in health assessment, maternal child care, mental health, acute care, and community health nursing. This program admits nursing majors at the freshman year and offers early, hands-on clinical courses. The R.N.-to-B.S. program allows registered nurses to complete their baccalaureate requirements. The Second Degree Baccalaureate Program allows students who hold a degree in another field to pursue a B.S. in Nursing. The master's degree program prepares pediatric nurse practitioners and adult nurse practitioners, and offers a post-master's oncology certification. A graduate nursing consortium with the Purdue Schools of Nursing at Calumet and Fort Wayne offers various specializations. The Doctor of Nursing Practice (D.N.P.) delivers a post-baccalaureate to practice doctorate curriculum. See www.nursing.purdue.edu.

School of Pharmacy and Pharmaceutical Sciences

The school offers an accredited professional program leading to the Doctor of Pharmacy degree. This program combines a basic and applied science background as well as clinical experience allowing students to function as licensed pharmacists to provide pharmaceutical care. The prepharmacy curriculum can be taken either through Purdue's prepharmacy program or at another institution. It typically takes a minimum of two to three years of academic study to meet the pre-pharmacy course requirements. The school also has a four-year, non-licensure-eligible B.S. in Pharmaceutical Sciences degree designed for entry-level pharmaceutical industry positions or as a foundation for advanced education. See www.pharmacy.purdue.edu.

College of Science

Actuarial science, biological sciences, chemistry, computer science, earth and atmospheric sciences, mathematics, physics, statistics, math and science secondary school teaching, and interdis-

ciplinary science programs prepare students for immediate careers or advanced study. Premedical, pre-dental, and pre-veterinary options; a cooperative education program; study abroad; and honors programs are available. Students may pursue official minors in other areas outside their major. Enrollment in sciences while deciding on a major in any field is encouraged. A highly qualified faculty, state-of-the-art facilities, and ongoing research keep teaching up to date. See www.science.purdue.edu.

College of Technology

The eight departments and 23 concentrations in the College of Technology prepare students to meet the technological needs of business, industry, and government. Technology students begin taking courses in their majors as early as their freshman year. Courses and other opportunities allow students to experience a variety of hands-on, real-world applications. The college awards associate's, bachelor's, and graduate degrees. See www.purdue.edu/technology.

School of Veterinary Medicine

This professional school has assumed a leading position nationally and internationally in educating the veterinary medical team. The school is fully accredited and is one of only 28 in the United States that grant the Doctor of Veterinary Medicine (D.V.M.) degree. The Veterinary Technology Program is accredited by the American Veterinary Medical Association (AVMA) and awards Associate of Science and Bachelor of Science degrees. The Associate of Science degree is also offered via distance learning. The Veterinary Technology Program at Purdue is one of only three AVMA-accredited programs administered by a school of veterinary medicine. See www.vet.purdue.edu.

The Graduate School

The Graduate School oversees more than 70 programs of graduate study and research that lead to advanced degrees. Purdue graduate students engage in relevant coursework and cutting-edge research that lead to master's and doctoral degrees in agriculture, consumer and family sciences, education, engineering, health sciences, liberal arts, management, nursing, pharmacy, science, technology, veterinary medicine, and a variety of exciting interdisciplinary programs. The Graduate School also offers several graduate-level, academic credit certificate programs and combined (undergraduate/graduate) degree programs. For details about the Graduate School at Purdue, visit www.gradschool.purdue.edu.

College of Agriculture Academic Programs

Mission

Through leadership and innovation in learning, discovery, and engagement, Purdue Agriculture strives to be at the forefront of sustainable and dynamic agricultural, food, and natural resource systems, helping make a better Indiana, nation, and world.

Bachelor of Science Degrees

The College of Agriculture offers 42 plans of study leading to the degrees of Bachelor of Science (B.S.), Bachelor of Science in Forestry (B.S.F.), or Bachelor of Science in Landscape Architecture (B.S.L.A.). The College of Agriculture and the College of Engineering cooperate to offer a plan of study leading to the degree of Bachelor of Science in Agricultural Engineering (B.S.A.E) and a curriculum leading to the degree of Bachelor of Science in Biological Engineering (B.S.B.E.).

These programs of study prepare graduates for professional roles in the food, agricultural, and natural resource system. Plans of study include the biological and physical sciences, communication, social sciences and humanities, economics, and technical subjects related to the academic major.

Baccalaureate degree programs are offered in the following areas:

Agribusiness Management
Agricultural and Natural Resources Engineering
Agricultural Communication
Agricultural Economics
Agricultural Education
Agricultural Finance
Agricultural Systems Management
Agronomic Business and Marketing

Animal Agribusiness
Animal Production
Animal Products
Animal Science
Applied Meteorology
Biochemistry
Biological and Food Process Engineering
Culinary Science
Entomology
Environmental Plant Studies
Environmental Soil Science
Farm Management
Fisheries and Aquatic Sciences
Food Industry Marketing and Management
Food Manufacturing Operations
Food Science
Forestry
Horticultural Production and Marketing
Horticultural Science
Interdisciplinary Agriculture
International Agronomy
Landscape Architecture
Landscape Horticulture and Design
Natural Resources and Environmental Science
Natural Resources Planning and Decision Making
Plant Biology
Plant Genetics and Plant Breeding
Public Horticulture
Quantitative Agricultural Economics
Sales and Marketing
Soil and Crop Management
Soil and Crop Science
Turf Science
Urban and Industrial Pest Management
Wildlife
Wood Products Manufacturing Technology

Preprofessional Curricula

The College of Agriculture offers four preprofessional curricula for students planning to earn degrees in agricultural or biological engineering, environmental studies, landscape architecture, or veterinary medicine.

Preagricultural and Biological Engineering. This one-year plan of study must be completed for entry into Bachelor of Science degree programs in agricultural engineering or biological engineering.

Pre-Environmental Studies. This one-year plan of study is intended to serve as a single portal for students entering Purdue with an interest in environmental studies who are undecided as to the particular area or specific program of study in which they wish to pursue.

Prelandscape Architecture. This one-year curriculum must be completed for entry into the Bachelor of Science degree program in landscape architecture.

Preveterinary Medicine. This three-year curriculum must be completed for entry into the Doctor of Veterinary Medicine degree program offered by the School of Veterinary Medicine.

Associate in Agriculture Degrees

The College of Agriculture offers Associate in Agriculture degrees in the following academic specializations:

Agricultural Economics
Agricultural Systems Management
Agronomy
Animal Sciences
Horticulture
Interdisciplinary Agriculture

Teacher Education Program

Purdue University offers programs that prepare students for teaching in early childhood, middle childhood (elementary education), early adolescence (junior high/middle school), adolescence/young adulthood (secondary), and exceptional needs (special education). Program standards, curricula, and licensure are in accord with regulations promulgated by the Indiana Department of Education and authorized by the National Council for Accreditation of Teacher Education (NCATE). Descriptions of performance-based programs may vary by content areas. Official performance-based program guidelines are available via the College of Education Teacher Education Web site at www.teach.purdue.edu/licensure. Students seeking additional clarification and guidance should consult with an academic advisor.

A person who already holds a bachelor's degree may wish to complete a teacher education program as an "undergraduate or graduate for licensing only" student. If this option is chosen and a second baccalaureate degree is not desired, please contact the Office of Professional Preparation and Licensure for a transcript evaluation. Eligibility requirements do apply.

Title II Reporting Requirements. Purdue University is in compliance with Title II reporting requirements. Please visit www.education.purdue.edu/title2 to obtain complete details. If you are unable to access this Web site, please contact the Office of Professional Preparation and Licensure at Beering Hall of Liberal Arts and Education, Room 3229; 100 N. University Street; West Lafayette, IN 47907-2098 for a copy of the report.

Teacher Education Requirements

The following information outlines the assessment of students completing a teacher education program at Purdue University. For the most current information, visit www.education.purdue.edu/oppl/program.html. The candidate must:

- Attend the Office of Professional Preparation and Licensure Teacher Education Orientation during Block I or CDFS 10000;
- Submit the Application/Signature Form to the licensure office;
- Complete Gates A, B, and C (an application is not required for Gate B or C);
- Complete Gate D licensure requirements;
- Apply for the State of Indiana license through the Office of Professional Preparation and Licensure upon successful completion of the program and other possible state requirements such as the cardiopulmonary resuscitation (CPR) certificate.

Required Criteria and Suggested Time Line

Remain flexible. The length of time to complete the Teacher Education Program is determined by academic progress and career planning. Additional time may be necessary if you are: **a)** changing your degree objective or transferring, **b)** overcoming a GPA below the required teacher education program standard, **c)** pursuing an additional major or licensure area, or **d)** encountering other unknown needs or circumstances.

Before the First Semester:

1. Admission to Purdue University.
2. Admission to the respective academic college, i.e., Agriculture, Consumer and Family Sciences, Education, Liberal Arts, Science, or Technology.
3. Assignment to and guidance by an academic advisor.

Consult with your academic advisor regularly to ensure that the required criteria are met and coursework is successfully completed in the sequence authorized by the Purdue University Teacher Education Council.

Requirements for Passing through Gate A

(A Teacher Education Program Application/Signature Form is required. See #7.)

1. Complete required courses for Gate A, with no grade lower than a "C":
   - Most program areas—Block I (EDCI 20500, EDCI 28500)
   - Early Childhood Education—CDFS 21000
2. Maintain a minimum overall GPA as established by the program area.
3. Maintain a professional education GPA of 3.0/4.0 with no grade lower than a "C" and no Incomplete ("I") for any professional education course. Courses include EDCI, EDPS, and EDST courses, in addition to courses designated by a program area as professional education courses.
4. Maintain a minimum content/major GPA as established by the program area.
5. Meet satisfactory assessment of the initial portfolio as defined by faculty. Early Childhood Education (ECE) majors, see Unit Assessment Component Chart for ECE.
6. Meet Praxis I: Pre-Professional Skills Tests (PPST) or Computerized PPST with the following scores:
   - Reading: 176 or above
   - Writing: 172 or above
   - Mathematics: 175 or above

   All scores must be officially submitted by the Educational Testing Service to Purdue University; code RA #1631 or WLAF as a score recipient. For more details, please refer to the Teacher Education Program Testing Information sheets available in the Office of Professional Preparation and Licensure; Beering Hall, Room 3229; 100 N. University Street; West Lafayette, IN 47907-2098.
7. Submit a completed and signed teacher education Application/Signature Form to the Office of Professional Preparation and Licensure if all of the above requirements have been met or will be met by the end of the semester (or summer session if enrolled in summer classes). The application may be marked to hold for current semester grades or test score reports. See application for due dates. A student must be enrolled in the col-

lege that houses the teacher education major in order to apply for Gate A.

The student's signature on the Signature Form acknowledges that s/he will read the teacher education information at www.teach.purdue.edu/licensure, referring to it regularly in order to remain informed of standards and responsibilities to the Teacher Education Program process. The signature also confirms understanding of the following:

- Limited Criminal History Reports may be required throughout the Teacher Education Program for field experiences, and a report will be required for licensing.
- Purdue University will check Zachary's Law Registry periodically.
- The Indiana Department of Education will review misdemeanor/felony convictions at the time of licensing.
- Consent to release personal information and Social Security number to the State of Indiana and other state/federal departments of education as well as provide a signed and valid CPR certificate.

8. Receive written notification of status through Gate A from the Office of Professional Preparation and Licensure.
9. If denied admission, reapplication is required.

Student Teaching Application Workshop Information. If you plan to student teach during the fall semester, you must apply in October of the preceding academic year. If you plan to student teach during the spring semester, you must apply in November of the preceding academic year. You must visit the Office of Field Experiences (OFE) to sign up for an Application Workshop to receive a pass code in order to complete the online Student Teaching Application on the Internet.

Note: For student teaching information, see the Office of Field Experiences (OFE) Web site at www.education.purdue.edu/fieldexp or e-mail fieldexp@purdue.edu. This application serves as a "letter of intent" and does not imply automatic placement, as a student must successfully complete Gates A, B, and C requirements before student teaching.

Requirements for Passing through Gate B

Requirements for Passing through Gate B must be met in order to continue in the program, including eligibility for study abroad block courses.

(No Teacher Education Program application is required for Gate B, although a Student Teacher Application must be submitted. See "Note" below.)

1. Complete required courses for Gate B, with no grade lower than a "C":
   - Most program areas—Block II (EDPS 23500, EDPS 26500)
   - Early Childhood Education—CDFS 21300 (grade of "B"), CDFS 31000, CDFS 31800, and EDPS 26000 or 26500
   - Special Education—Block II (EDPS 23500, EDPS 26500), EDPS 27000, and EDPS 46000
2. Maintain a minimum overall GPA as established by the program area.
3. Maintain a professional education GPA of 3.0/4.0 with no grade lower than a "C" and no Incomplete ("I") for any professional education course. Courses include EDCI, EDPS, and EDST courses, in addition to courses designated by a program area as professional education courses.
4. Maintain a minimum content/major GPA as determined by the program area.
5. Meet satisfactory assessment of the beginning portfolio as defined by faculty. Early Childhood Education (ECE) majors, see Unit Assessment Component Chart for ECE.
6. Request a Limited Criminal History Report if required for field experiences throughout the Teacher Education Program. The Zachary's Law Registry also will be checked periodically.
7. Failure to meet or comply with the above requirements will result in removal from methods courses.
8. Receive written notification of status through Gate B from the Office of Professional Preparation and Licensure.

Note: For student teaching information, see the Office of Field Experiences (OFE) Web site at www.education.purdue.edu/fieldexp or e-mail fieldexp@purdue.edu. A student must pass through Gates A and B before submitting the Student Teaching Application form to OFE. This application serves as a "letter of intent" and does not imply automatic placement.

Requirements for Passing through Gate C

(No Teacher Education Program application is required.)

1. Complete required courses for Gate C, with no grade lower than a "C":

- Most program areas—Specific methods courses
- Early Childhood Education—CDFS 40500, CDFS 40600, and CDFS 40800 with grades of "B"
- Elementary Education—Block III (EDCI 36100 and EDCI 36200), Block IV (EDCI 36300 and EDCI 37000), and Block V (EDCI 36400, EDCI 36500, and EDPS 43000)

2. Pass Praxis II: Subject Assessments/Specialty Area Tests required by the Indiana Department of Education for licensing. For information on required tests and passing scores, please consult the Teacher Education Program Testing Information sheets and the Educational Testing Service Web site at www.ets.org/praxis.
Note: Praxis II must be passed before being allowed to student teach. Praxis II tests are only offered seven times a year and must be registered for in advance.

3. Maintain a minimum overall GPA as established by each program area.

4. Maintain a professional education GPA of 3.0/4.0 with no grade lower than a "C" and no Incomplete ("I") for any professional education course. Courses include EDCI, EDPS, and EDST courses in addition to courses designated by a program area as professional education courses. All professional education coursework should be completed prior to student teaching.

5. Maintain a minimum content/major GPA as established by each program area. Most, if not all, content courses should be completed before student teaching.

6. Meet satisfactory assessment of the developing portfolio as defined by faculty.

7. Receive written notification of status through Gate C from the Office of Professional Preparation and Licensure.

8. Successful completion of requirements through Gate C of the Teacher Education Program allows the Office of Professional Preparation and Licensure to authorize the student to enter the student teaching semester. For information regarding student teaching placement, please see the Office of Field Experiences (OFE) Web site at www.education.purdue.edu/fieldexp or e-mail OFE at fieldexp@purdue.edu.

9. Student Teaching Information. To be eligible to student teach, a candidate must have applied and been admitted to the Teacher Education Program and have passed through Gate C. For information regarding student teaching placement, please see the Office of Field Experiences (OFE) Web site at www.education.purdue.edu/fieldexp or e-mail fieldexp@purdue.edu.

10. Request a Limited Criminal History Report if required for field experiences. The Zachary's Law Registry also will be checked periodically.

11. Begin job search through the Center for Career Opportunities at www.cco.purdue.edu/student.

Requirements for Passing through Gate D

(License application is required. See #9.)

1. Student teach.
- Professional education courses, including methods courses, must be successfully completed before student teaching.
- You may student teach only after passing through Gate C.
- A grade of "C" or above must be earned in EDCI/EDPS 49600, 49800, 49900, or CDFS 45000 Supervised Teaching.

Note: For more information regarding student teaching, please see the Office of Field Experiences (OFE) Web site at www.education.purdue.edu/fieldexp or e-mail fieldexp@purdue.edu.

2. Maintain a minimum overall GPA as established by each program area.

3. Maintain a professional education GPA of 3.0/4.0 with no grade lower than a "C" and no Incomplete ("I") for any professional education course. Courses include EDCI, EDPS, and EDST courses, in addition to courses designated by a program area as professional education courses.

4. Maintain a minimum content/major GPA as established by each program area.

5. Meet satisfactory assessment of the proficient portfolio as defined by faculty.

6. Continue to meet all criteria for passing through Gates A, B, and C.

7. Request a Limited Criminal History Report for licensure. The Zachary's Law Registry also will be checked periodically.

8. Receive degree. Recommendation for licensure is contingent upon the posting of the degree on the transcript. All encumbrances must be paid.

9. Apply for an Indiana Teaching License, even if leaving the State of Indiana. For

more details, consult the Indiana Licensure instruction packet provided by the Office of Professional Preparation and Licensure at the Student Teacher Orientation. The online license application may be submitted two months prior to the last day of required courses. Purdue University will make a recommendation for licensing upon completion of all licensure requirements.

Note: The following questions will be asked by the Indiana Department of Education Division of Professional Standards on the license application:

- Have you ever had a credential, certificate, or license to teach denied, revoked, or suspended in Indiana or in any other state?
- Have you ever been convicted of a felony?
- Have you been convicted of a misdemeanor other than minor traffic violations since January 15, 1994?

  If a conviction of a misdemeanor or felony (including a suspended sentence) is documented, the applicant will be required to submit a written explanation and copies of court records with the license application. The Indiana Department of Education is solely responsible for the review of and response to misdemeanor or felony convictions.

10. Apply for licensure in other states, if desired. Contact the licensing office in the particular state and request application materials. Consult the National Association of State Directors of Teacher Education and Certification at www.nasdtec.org/jurisdictions.php for Web sites, addresses, and telephone numbers.

Note: For additional licensing, apply for renewal or submit a request for an evaluation through the Office of Professional Preparation and Licensure if coursework is to be completed through Purdue University.

Cooperative Programs at Purdue Regional Campuses, Ivy Tech Community College, and Vincennes University

The Purdue College of Agriculture cooperates with Purdue regional campuses, Ivy Tech Community College, and Vincennes University to transfer credits that may be used to fulfill undergraduate degree requirements. More details regarding these cooperative programs may be obtained at www.ag.purdue.edu/oap.

High School Agricultural Science and Business Courses

Students will benefit from completing the college preparatory curriculum with agricultural science and business elective courses, when available, that support their career interests.

Admissions

Admissions Inquiries and Procedures

The information that follows is a basic overview of the undergraduate admission process. For the most current information regarding admission procedures, deadlines, and criteria, visit www.admissions.purdue.edu or contact the Office of Admissions; Purdue University; Schleman Hall; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; admissions@purdue.edu; (765) 494-1776. Prospective students also are encouraged to visit the Web site to sign up for the Office of Admissions contact list to receive mail and e-mail from Purdue.

Application Deadlines

High school students are strongly encouraged to apply for admission very early in their senior year, and some programs have specific deadlines. There also are specific deadlines for **transfer students.** Current application and scholarship deadlines are posted on the undergraduate admissions Web site.

Freshman Admissions Criteria

Applications are reviewed on an individual and holistic basis. First and foremost, applicants must be prepared academically for the rigors of college and the academic demands of the major to which they are seeking admission. In its review of each applicant, Purdue considers

the following factors: high school coursework, grades, strength of curriculum, academic trends, class rank, core and overall grade point average, SAT or ACT test score, personal statement, personal background and experiences, and space availability in the intended major.

Transfer Admissions Criteria

College students who want to transfer must have completed minimums of 12 to 24 semester credit hours of college-level coursework prior to enrollment at Purdue. Minimum credit-hour requirements will vary based on each student's high school and/or college academic credentials. Criteria for transfer admission vary widely based on the major to which the student is applying. All programs have minimum GPA requirements, and some have college coursework prerequisites. The Office of Admissions Web site has the most current information about admission criteria and processes as well as about transferring credit.

Early Registration — STAR

Student Access, Transition and Success Programs (SATS) invites you to campus for one day of early registration during the summer before your first semester as a new student. Summer Transition, Advising, and Registration (STAR) is a day set aside for you to meet with your academic counselor and register for first-semester classes. The University will mail you a fee statement.

Student Orientation and Support Programs

Student Access, Transition and Success Programs (SATS) is responsible for the coordination of initiatives that help you prepare for, transition into, and succeed as a student in Purdue University's academically rigorous environment.

SATS, a division of the Office of Enrollment Management, offers several programs to help beginning and transfer students adjust to Purdue. Boiler Gold Rush is organized for new, beginning students and transfer students, and it includes a variety of activities designed to help you make a smooth transition into Purdue. Students who begin their studies at other times of the year also have the opportunity to participate in orientation. Invitations to those different programs are mailed to you at the appropriate times.

SATS programs include Summer Transition, Advising, and Registration (STAR); Common Reading; Learning Communities; Orientation Programs (such as Boiler Gold Rush and Welcome Programs); Parent and Family Programs; the Purdue Promise program; and the West Central Indiana Regional Twenty-first Century Scholars site. For more information on any of these programs, please visit www.purdue.edu/sats, e-mail sats@purdue.edu, or phone (765) 494-9328. The SATS address is Stewart Center, Room G77A; 128 Memorial Mall Drive; West Lafayette, IN 47907.

International Students

If you are an applicant from another country, your application and supporting documents will be evaluated by the staff in the Office of International Students and Scholars. You will be admitted on the basis of credentials certifying the completion of preparatory studies comparable to requirements for United States citizens applying at the same entry level. Guidelines for determining admissibility are specified in the "Admissions Criteria" section of this publication. English translations must accompany transcripts and other credentials. You also must submit satisfactory evidence of your ability to comprehend English as shown by a TOEFL (Test of English as a Foreign Language) score of at least 550 (213 computer-based score, 79 Internet-based score). The minimum score for First-Year Engineering applicants is 567 (233 computer-based score, 88 Internet-based score).

You must furnish sufficient evidence of adequate financial support for your studies at Purdue.

The Office of International Students and Scholars will assist you in entering the United States and the University. The office also will provide other services such as orientation programs, immigration advising, and personal and cross-cultural counseling. See the Web site at www.iss.purdue.edu.

Military Training

Reserve Officers' Training Corps (ROTC) is available for all men and women who are full-time students. You can pursue military courses in conjunction with the academic curriculum and receive academic credits. If you complete the program, you will receive a commission as an officer in the Army, Navy, Marine Corps, or

Air Force. You do not incur a commitment until you are accepted into the program and enroll in the third-year course or accept an ROTC scholarship. Scholarships that assist with tuition, incidental fees, and textbooks are available through all four services. A monthly allowance is available for students who sign a contract. Additional information is available in the College of Liberal Arts catalog, or you can contact any of the military departments directly. All ROTC offices are located in the Armory.

Proof of Immunization

Indiana state law requires proof of immunization for the following vaccine-preventable diseases as condition of enrollment on residential campuses of state universities: measles, mumps, rubella, diphtheria, and tetanus. In addition, international students must provide documentation that they have been tested for tuberculosis after arriving in the United States. Information regarding compliance will be forwarded to all admitted students.

Purdue Across Indiana

The Purdue academic system extends across the state with academic programs at four system campuses and several College of Technology locations.

System Campuses

Admission to these system campuses is administered by the admissions department at each campus. These campuses include:

- Indiana University-Purdue University Indianapolis (IUPUI) — Indianapolis, Indiana
- Indiana University-Purdue University Fort Wayne (IPFW) — Fort Wayne, Indiana
- Purdue North Central — Westville, Indiana
- Purdue Calumet — Hammond, Indiana

College of Technology Statewide

Admission to College of Technology Statewide locations is administered by the Office of Admissions at Purdue's West Lafayette campus. College of Technology Statewide locations include:

- Anderson
- Columbus
- Greensburg
- Indianapolis
- Kokomo
- Lafayette
- New Albany
- Richmond
- South Bend
- Vincennes

For more information about The Purdue System-wide campuses and College of Technology Statewide locations, visit www.purdue.edu and click on "Purdue Across Indiana."

Nondiscrimination Policy Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1 which provides specific contractual rights and remedies. Additionally, the University promotes the full realization of equal employment opportunity for women, minorities, persons with disabilities and veterans through its affirmative action program.

Any questions or concerns regarding the Nondiscrimination Policy Statement shall be referred to the Vice President for Ethics and Compliance for final determination.

Expenses

The cost of attending Purdue University varies, depending on a variety of factors, including where a student chooses to live; travel expenses; food costs; enrollment in a special program; date of entry; the college or school in which you are enrolled; etc. Basic minimum costs for the two-semester 2009–10 school year on the West Lafayette campus are shown in the following table. Some academic programs may have additional fees. Contact the department if you have questions.

Full-time students are charged a general service fee, a technology fee, and a repair and rehabilitation fee. The general service fee provides students with access to a variety of services and privileges such as access to the Recreational Sports Center and the Boilermaker Aquatic Center for recreational sports activities. It also allows deep-discount ticket prices for most Convocations-sponsored events and for Intercollegiate Athletics contests with presentation of a student ID card.

With payment of full fees, students have access to the Purdue Student Health Center that covers medical clinical office visits, nutrition consultations, health education services, and a limited number of sessions for psychological counseling. Additional fees are charged for lab, x-ray, urgent care, physical therapy, and other services.

The technology fee is used to enhance student access to the campus networks, computer laboratories, and electronic access to information and databases. Technology fee funds are used to equip classrooms with computer and video projection equipment.

The Repair and Rehabilitation fee is assessed to address maintenance funding for buildings and infrastructure on campus, and funds received from the fee will be dedicated to building and infrastructural needs. The establishment of the fee is a result of growing unfunded needs to address critical building and infrastructural upkeep.

Miscellaneous personal expenses include such items as clothing, transportation, telephone, newspapers and magazines, dry cleaning and laundry, entertainment, etc.

2009–10 Estimated Costs West Lafayette Campus (Fall and Spring Semesters)

Items	Indiana Resident	Nonresident
Tuition/Fees	$8,638*†	$25,118*†
Room/Board	8,710	8,710
Books/Supplies	1,220	1,220
Travel	310	480
Miscellaneous	1,760	1,760
Total	**$20,638**	**$37,288**

** First-time students enrolled at the West Lafayette campus beginning in the Summer 2009 Session and thereafter pay these fees. Undergraduate, graduate, and professional students who were enrolled as degree-seeking students prior to the Summer 2009 Session may be eligible for lower fees based upon continuous enrollment. Please see the University Bursar's Web site at www.purdue.edu/bursar for more information regarding rates.*

† Your budget can vary, depending on your state of residence and the type of housing and academic program you select. Some programs have additional fees: Engineering, $1,000; Management, $1,274; Technology, $500; Flight, individual courses in the program have additional fees that can be reviewed at www.purdue.edu/bursar or by contacting the Department of Aviation Technology. International students pay an additional $60 per semester.

Rates and refund schedules are subject to change without published notice.

Refunding of Fees and Tuition

Registered students who find it necessary to cancel their registration before the beginning of classes, upon the recommendation of the registrar, will receive a 100 percent refund of all fees and tuition.

Non-Title IV Aid

Students who withdraw during the first six weeks of a semester, with the recommendation of the registrar, will receive a partial refund of the general service fee and tuition. More specifically, the percentage of refund is determined as follows:

Fall or Spring Semester

1. Withdrawal during the first or second week, 80 percent refund
2. Withdrawal during the third or fourth week, 60 percent refund
3. Withdrawal during the fifth or sixth week, 40 percent refund

No portion of the technology fees, repair and rehabilitation fees, or academic building facilities fee will be refunded once classes begin.

Title IV Aid

Once classes begin, refunds are prorated based on the date of withdrawal from class(es). Refunds are based on a diminishing scale through 60 percent of the semester. Refunds are calculated on all fees and tuition.

Summer Modules

Refunds for summer modules are proportionate on the same basis as semester refunds.

Financial Aid

To ensure that all students have an opportunity to obtain a college education regardless of their financial circumstances, Purdue University, through the Division of Financial Aid, administers a fourfold program of scholarships, grants, employment opportunities, and loans.

The Purdue University Division of Financial Aid administers federal, state, and University financial assistance programs. These programs require students to have a high school diploma or GED. Most types of aid also are based upon financial need and satisfactory academic progress. Students must submit a Free Application for Federal Student Aid (FAFSA) online at www.fafsa.ed.gov to be considered for all types of financial aid. Students should apply early for Purdue financial aid. Eligible FAFSAs submitted by March 1 will receive preference in the awarding of aid.

Families are welcome to visit the campus to discuss the types of available aid and the application procedure. Walk-in counselors are available from 9:00 a.m. to 5:00 p.m. on Monday, Tuesday, Wednesday, and Friday, and from 1:00 to 5:00 p.m. on Thursday. Telephone counselors are available from 8:00 a.m. to 5:00 p.m. Monday through Friday at (765) 494-0998. Computer access to student aid status is available at mypurdue.purdue.edu.

Resident Assistants

University Residences has a plan whereby graduate and undergraduate students who are at least 21 years of age can be hired as a resident assistant (RA). An RA devotes approximately 20 hours each week to his or her duties in this capacity, with most of the time scheduled during evenings and weekends. Compensation for an RA position includes reduced tuition, room and board, and a small stipend. Applications and additional information for those interested in becoming a resident assistant can be found at www.housing.purdue.edu.

Living Accommodations

University housing facilities and programs are available to all students based on Purdue's policy of equal opportunity regardless of national origin, race, religion, color, or sexual orientation. It is the University's desire and expectation that all others providing housing or services to Purdue students will do so in a manner consistent with this policy. However, the University does not approve or disapprove specific housing accommodations since it believes that the choice of housing rests with you, the student.

As a Purdue student, you have a variety of choices when it comes to choosing your new home while attending school. You can live in one of 15 University Residences, a fraternity or sorority house, cooperative housing, or in a privately operated facility within the local community.

Apply for on-campus housing as soon as you have a confirmed interest in attending Purdue. You will need to pay a $100 nonrefundable housing application processing fee (not a deposit).

Apply online at www.housing.purdue.edu, where you can fill out your housing application, choose your preferences, and sign your housing contract. The site also will prompt you to fill out an online preference form, which will be used to assign your residence and match you with a compatible roommate. If you want to live with a friend, both you and your friend must rank your residence preferences in the same order and request the other as a roommate.

May 1 is the housing application deadline. Because the University does not guarantee on-campus housing, it is important that students meet this deadline. Students who apply for housing after the May 1 deadline will be assigned to a residence if space is available. First-year students are not required to live on campus.

Students who apply and sign a housing contract by May 1 will be assigned a random number that will be used to establish priority for hall choice in the housing assignment process. Changes to, or cancellation of, your housing contract may be made until 11:59 p.m., April 30. (Please remember to re-sign the contract if you have made a change to your housing preferences.) Your housing contract becomes binding on May 1. As of that time, your contract can only be cancelled if you do not attend Purdue University during the contract period.

Students requiring special accommodations should contact the University Residences Director's Office at (765) 494-1000 to discuss their particular needs when their housing application is submitted.

The Office of the Dean of Students offers assistance to students seeking off-campus housing. After being admitted, students should contact the Office of the Dean of Students as early as possible to begin their search for off-campus housing: visit www.purdue.edu/odos, e-mail offcampushousing@purdue.edu, or call (765) 494-7663.

University Residences for Undergraduate Men and Women

University Residences provides accommodations for approximately 10,541 single undergraduate men and women.

The all-male residences include Cary Quadrangle, providing accommodations for 1,166 students, and Tarkington, providing space for about 706 students.

Seven University Residences — Earhart, Harrison, Hillenbrand, McCutcheon, Owen, Shreve, and Wiley — house approximately 800 students each, and Meredith Hall accommodates 620 students. These are coeducational units with male and female students assigned to separate areas of each building.

Duhme, Warren, Wood, and Vawter halls comprise the all-women's residences for the 2009–10 academic year and are referred to as Windsor Halls. Windsor Halls provide accommodations for 595 students.

First Street Towers opened to Purdue sophomores, juniors, and seniors for the Fall 2009 Semester. Each of the main residential floors of First Street Towers contains two clusters of 22 single rooms with private baths, for 356 residents.

All University Residences contain generous lounge space, recreation areas, kitchenettes, study spaces, and post office facilities.

As a student, you may choose from four meal plans consisting of 10, 12, 15, or 20 meal swipes a week, as suits your lifestyle. University Residences offers students who are 19 years of age or older by August 21, 2009, the Boiler Block

Plan, consisting of a block of 246 meal swipes. With this plan, you may use your meal swipes as often as you wish. All meal plans include Dining Dollars, which may be used to buy additional food items at University Residences' Dining Services retail operations, such as grills and mini-marts. You may eat at any University Residences' Dining Services facility by using your University ID card.

Computer labs are available in McCutcheon, Meredith, and Tarkington halls. In addition, two computers and a public printer are available in every residence that does not have a computer lab so residents are able to check e-mail and print documents as needed. Residents will have ResNet, a high-speed Internet service, in their room without paying an additional fee.

Room and board rates for the 2009–10 academic year vary from $6,906 to $14,204, depending on your chosen meal plan option, residence, and room size.

Approximately 550 spaces in Hawkins Hall are reserved for assignment to older undergraduate students. Meal plans are not available for residents of Hawkins Hall. Residents of Hawkins may purchase either the Open Dining Card or use BoilerExpress for dining in any University Residences dining facility. Accommodations in Hawkins Hall are on a room-only basis. The cost for a room in Hawkins Hall for the 2009–10 academic year ranges from $375 to $696 a month depending on the type of room selected.

More than 1,000 spaces for single undergraduate students are available in Hilltop Apartments. The apartments house two or three students and are available for both single male and female students. All normal policies and regulations of University Residences apply to the apartments. Students living in the apartments may choose a meal plan that allows access to any University Residences Dining Services facility, or they may choose a room-only option. The room and board rate for the 2009–10 academic year in Hilltop Apartments ranges from $8,940 to $10,866 a year depending upon the apartment and meal plan selected.

Rates quoted are subject to change as approved by the Board of Trustees and undoubtedly will be somewhat higher during the 2010–11 period of this publication.

Visit www.housing.purdue.edu for additional information.

Accommodations for Married Students/Families

Purdue Village provides students with families convenient housing within a one-mile walking distance of campus and is convenient to shopping and bus routes. The family apartments, operated by University Residences, are unfurnished and equipped with a stove and refrigerator. There are one-bedroom and two-bedroom apartments for families; the two-bedroom apartments include washers and dryers.

One-bedroom family apartment costs range from $582 to $597 a month. Two-bedroom units range from $717 to $732 a month. Your rent payment covers all utilities, including local telephone service and Boiler TV (cable). These rates are effective during the 2009–10 academic year and are subject to change as approved by the Board of Trustees.

Each apartment is equipped with a connection for the campus cable TV system as well as for the campus computing network. The apartments are not air-conditioned, but tenants may bring or purchase their own air-conditioning unit as long as it meets specified criteria, has compatible voltage ratings, and the apartment's maintenance staff does the installation.

With more than 60 countries represented among the residents, Purdue Village is a global community. Families have the benefit of plenty of yard space and playgrounds, and they can take advantage of Purdue Village Preschool and the English for Speakers of Other Languages (ESOL) Program.

Visit www.housing.purdue.edu for more information about Purdue Village.

Cooperatives

Cooperative houses also provide housing for students. These houses are large residences that are owned and operated by 20 to 50 students. Seven women's houses and five men's houses have been recognized officially by the Office of the Dean of Students, and each house has a live-out faculty or staff advisor.

Students in cooperative houses significantly decrease their housing costs by contributing three to four hours of house duties a week. Residents of cooperatives pay an average of $3,000 per academic year for room and board. New members are selected by current members through a rush process each January.

To obtain information about becoming a cooperative member, contact the Office of the Dean of Students at (765) 494-1231 or at Schleman Hall, Room 250; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050. Details are also available at www.purduecooperatives.org.

Students are expected to complete and return application information by February 1 or earlier for membership the following fall semester.

Fraternities and Sororities

Purdue has 46 fraternities and 24 sororities. Most members live in chapter houses, and membership is by invitation.

Sororities provide an opportunity in the fall for interested women students to join a chapter. Yearly costs for sororities range from $3,300 to $4,380. The average number of women living in a sorority is 88.

In the fall, the Interfraternity Council provides recruitment information through which interested men can become acquainted with the fraternity system. Open recruitment is conducted throughout the academic year. The average number of men belonging to a fraternity is 72, and costs range from $2,000 to $3,500 a semester.

For additional information, contact the Office of the Dean of Students; Purdue University; Schleman Hall, Room 250; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; or call (765) 494-1232. Online information is available at www.purduegreeks.com.

Student Services

Counseling

Each college or school has a general counseling office and academic advisors who can answer questions about degree requirements, registration, dropping and adding courses, and withdrawal from school.

Mature and qualified faculty and staff, graduate students, and older undergraduate students are employed on the University Residences counseling staffs and live in the halls to assist students with personal and scholastic problems.

The Office of the Dean of Students is staffed by professionally trained counselors who provide personal, educational, and career counseling. They can, for example, offer assistance or refer you to specialized help in such areas as vocational choice, campus activities, scholastic concerns, multicultural programs, assistance for students with disabilities, home and community relationships, and coping strategies.

Other campus services for students include the Counseling and Guidance Center, Counseling and Psychological Services, Financial Advising Service, International Students and Scholars, Learning Center, Marriage and Family Therapy Center, Steer Audiology and Speech-Language Center, Student Health Center, and Writing Lab.

Services for Students with Disabilities

Services for students with disabilities (physical, mental, and learning disabilities) are provided through the Adaptive Programs division of the Office of the Dean of Students. Services vary according to the needs of students. They include interpreters, readers, note-taking assistance, accessible class scheduling, parking permits, and help working with professors. For further information, contact the Office of the Dean of Students. The Web site is www.purdue.edu/odos/drc. The general office number is (765) 494-1747, and the TDD number for people with hearing or speech impairments is (765) 494-1247.

College of Education Academic Services

The College of Education's Academic Services Unit offers several types of assistance important to students enrolled in teacher education programs. At Purdue, students in teacher education programs are academic majors in the colleges of Agriculture, Education, Consumer and Family Sciences, Liberal Arts, Science, and Technology. The College of Education offers majors in the fields of elementary education, social studies education, and special education. The Academic Services Unit within the

College of Education assists all students in teacher education, regardless of the college in which their major is housed, by providing the following specialized services: admission and retention, field experiences, and licensure.

The Office of Professional Preparation and Licensure processes students' applications for all teacher education programs, provides information about programs available at Purdue, and monitors students' progress for retention within programs. As a student, you should be aware that admission to the Purdue University Teacher Education Programs is a separate and distinct step beyond admission to the University and that the standards for admission to, and retention in, teacher preparation programs are higher than those required to remain in good standing within the University. This office also provides explanation and interpretation of teacher licensing requirements. Students who have completed teacher education programs are evaluated and recommended for licenses. This office maintains licensing records and provides accreditation support.

See www.education.purdue.edu/oppl for more information.

The Office of Field Experiences coordinates all placements in area schools in order to provide students with the early field experiences and student teaching experiences required in all teacher education programs.

See www.education.purdue.edu/fieldexp for more information.

The Technology Resources Center

The Technology Resources Center (TRC) provides curricular materials, instructional resources, and technology support and service for educators. It assists students, pre-service teachers, faculty, and staff to ensure that they possess the necessary skills to use technology in support of their professional goals. This includes a 24-workstation computing facility, software and equipment checkout, and an e-Portfolio development site. The TRC also serves as a textbook review site for annual state textbook adoption services. See www.trc.purdue.edu.

Center for Career Opportunities

The staff of the campus-wide Center for Career Opportunities will assist you with your career-related employment search. Counseling, guidance, and a wide variety of job search services related to internships and full-time employment are available.

The center maintains contacts with many industrial and business organizations as well as with governmental and non-profit agencies. You can arrange interviews with employer representatives or explore current openings for internships or full-time positions. For more information, refer to the center's home page at www.cco.purdue.edu.

For Further Information

University Regulations. The *University Regulations* publication will provide details about academic, conduct, and student organization policies and procedures. You can access the Web site at www.purdue.edu/univregs. Printed copies are available from Purdue Marketing and Media; South Campus Courts, Building D; 507 Harrison Street; West Lafayette, IN 47907-2025; (765) 494-2034.

Graduation Rates. Graduation rates for the West Lafayette campus are available by contacting the Office of Enrollment Management, Analysis, and Reporting; Schleman Hall; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; (765) 494-0292; enrollmentmanagement@purdue.edu. These rates are calculated and made available as required by the Student Right-to-Know and Campus Security Act.

Safety. The University strives to provide a safe and secure environment for students, staff, and visitors. The University distributes an annual security report containing campus crime statistics and information relating to campus safety and security policies and programs. The report is available on the Web at www.purdue.edu/police. A paper copy may be requested by calling (765) 494-8221 or contacting the Purdue University Police Department; Terry House; 205 S. Intramural Drive; Purdue University; West Lafayette, IN 47907-1971.

Information Technology

The Office of the Vice President for Information Technology is in charge of the integrated computing and telecommunications services on the West Lafayette campus. The information technology (IT) program, formally known by the acronym ITaP, serves Purdue students, faculty, staff, and visitors to campus.

Computing services range from the very visible computing laboratories that are located throughout campus to the unseen but essential enterprise applications that facilitate the business of the University. Computing staff install, maintain, operate, and repair computer equipment. They provide such services as career accounts, e-mail, calendaring, directories, and database administration.

In addition to ITaP's laboratory facilities, its instructional services include:

1. The Blackboard and Banner course management system.
2. Technology in the Classroom (TIC) sites.
3. Help in preparing multimedia materials to enhance instruction.
4. Help in training students in particular software applications for classroom assignments.
5. Grants for innovative instructional projects including developing courses online using information technology.
6. The Digital Learning Collaboratory, a joint project with the Purdue University Libraries.
7. The Assistive Technology Center for those with special needs.
8. Web-based access to many software applications through Software Remote.

ITaP also provides high-performance research computing equipment and services for faculty through its Rosen Center for Advanced Computing. Multiple Linux clusters, an SGI Altix 4700, and a SiCortex 5832 serve intensive computational needs ranging from engineering and physics simulations and models to computational biology and chemistry. Support for researchers includes partnership on grant proposals; consulting and collaboration on solutions for projects needing advanced computations; management and storage of large data sets; and development of scientific applications, community tools, and science gateways. The HUBzero platform provides Web-based cyberinfrastructure for education and research and supports simulation and modeling in a variety of disciplines, including nanotechnology, pharmaceuticals, and healthcare.

Distributed computing and grid computing are basic elements in the research computing program. ITaP manages DiaGrid, which harnesses tens of thousands of idle processors on and off campus for research and education purposes. Through ITaP, Purdue also has access to resources nationwide on the TeraGrid, the National Science Foundation's comprehensive cyberinfrastructure for open scientific research, education, and innovation. The optical fiber network known as I-Light links Purdue's West Lafayette campus to Indiana University and Indiana University-Purdue University Indianapolis (IUPUI) and joins computers at Purdue and Indiana into a virtual machine room with teraflop capabilities.

The Envision Center for Data Perceptualization provides scientific visualization and multimedia production services, including animation creation and rendering and virtual environment creation, along with computer-aided design, haptic (touch and feel) interaction capabilities, large-scale data handling, and motion capture. The center provides access to, and training for, many popular commercial applications in those areas and can work with faculty members on grant applications and project management needs. The center's collaboration facilities accommodate on-site and remote participation from multiple locations using technologies such as Polycom, Access Grid, and Web 2.0 technologies.

ITaP also makes video production and audio-visual duplication facilities available as well as satellite uplink and downlink capabilities and broadcast and network services.

ITaP implements and manages campus-wide networks for data and voice communication, improves the security of the data that crosses these networks, and promotes the preservation of personal information security and privacy for all people at Purdue. Telecommunications services provided by ITaP range from basic phone services for campus offices and student residences to telephone operator services and wireless connectivity in the common areas of buildings throughout the campus. ITaP supports the infrastructure that links campus buildings by optical fiber and provides Internet access.

ITaP negotiates contracts and licenses for mass purchases of informational technology equipment and licenses for software used by University personnel. As an additional service,

ITaP has negotiated significant discounts for faculty, staff, and students on personal purchases of hardware available through the Web and also for software media sold on campus. The hardware discounts also are available to Purdue alumni. Demonstration computer hardware is displayed at ITaP Shopping Offline in Stewart Center, Room G65. Software is sold at the BoilerCopyMaker in the Purdue Memorial Union, Room 157. Information also is available from www.itap.purdue.edu/shopping.

ITaP offers courses and one-on-one consulting on computing and telecommunications, from selecting phone systems to basic use of Microsoft office applications, programming, visualization, instructional media, e-learning, and research techniques.

For additional information, please consult www.itap.purdue.edu, call (765) 494-4000, or visit the ITaP Customer Service Center in Stewart Center, Room G65; 128 Memorial Mall; West Lafayette, IN 47907-2034.

Libraries

The University Libraries system on the West Lafayette Campus includes 11 subject-oriented libraries, the Hicks Undergraduate Library, and the Karnes Archives and Special Collections Research Center. The Libraries Web site at www.lib.purdue.edu is the Libraries gateway to information services. Libraries faculty and staff provide assistance in person and through www.lib.purdue.edu/askalib; this includes help in gaining access to national and international information. Information about individual libraries can be found under "Libraries and Units" at www.lib.purdue.edu/libraries.

The Libraries offer 2.8 million printed volumes and electronic books, 40,000 electronic and print journals, more than 500 electronic databases, 3.1 million microforms, and access to federal government publications and patents that are received on a depository basis. Local library resources are supplemented by the 4 million items of research materials held by the Center for Research Libraries in Chicago, which includes 7,000 rarely held serial titles. Through Purdue's membership in the center, faculty and graduate students are assured of fast access to this material through the Interlibrary Loan Office in the Humanities, Social Science, and Education (HSSE) Library in Stewart Center.

The library collections and services of the Big Ten libraries, the University of Chicago, Ball State University, and Indiana State University also are available to Purdue students and faculty under cooperative agreements. Individuals who wish to use these facilities are encouraged to contact Circulation Services via e-mail to circservices@purdue.edu or by phone, (765) 494-0369.

The John W. Hicks Undergraduate Library may serve many of a student's library needs, particularly during the first two years at Purdue. Here students will find assistance in locating information needed for papers and speeches along with an extensive collection of reserve books for course assignments. A 24-hour study lounge and the Undergrounds Coffee Shop are located in the Hicks Undergraduate Library.

The Digital Learning Collaboratory (DLC) is located in Hicks Undergraduate Library. It is a joint initiative of the Purdue Libraries and Information Technology at Purdue. The DLC supports student learning through access to state-of-the-art hardware and software for creating multimedia projects in individual, group work, and instructional settings. It facilitates the integration of information and technology literacy into the undergraduate curriculum.

Additional Libraries facts and figures can be found within Purdue's Data Digest available at www.purdue.edu/DataDigest.

Study Abroad

The Office of Programs for Study Abroad is dedicated to internationalizing Purdue by helping as many students as possible have overseas experiences that enrich lives, enhance academic experiences, and increase career potential. The office helps students overcome academic, financial, or personal concerns that might prevent them from going abroad, and is especially devoted to removing obstacles for first-time travelers.

Purdue offers more than 200 study abroad and internship programs in dozens of countries, lasting from a week to a year, for all majors. Most programs do not require foreign language skills. Program costs vary, but many are comparable to the cost of studying at Purdue (with the exception of the travel expense). Participants earn Purdue grades and credits, so those who study abroad can graduate in the normal length of time. Most of the financial aid that covers Purdue expenses can also be applied to study abroad, and more financial aid specifically for study abroad has been available in recent years.

Students who have taken part in study abroad often describe their experiences as "life changing," "eye opening," and "the best choice I ever made."

Students should begin their international exploration either online at www.studyabroad.purdue.edu, by calling (765) 494-2383, or by contacting The Office of Programs for Study Abroad; Young Hall, Room 105; 302 Wood Street; West Lafayette, IN 47907-2108.

The Office of International Programs in Agriculture coordinates study abroad programs with colleges and universities in more than 20 countries that focus on food, agricultural, and natural resource disciplines. Several College of Agriculture study abroad programs offer scholarships to cover some of the program costs. Participation in study abroad programs of eight weeks or longer will satisfy the overseas component of the International Studies in Agriculture academic minor. More details about College of Agriculture study abroad programs are available online at www.ag.purdue.edu/ipia/studyabroad.

Abbreviations

The following abbreviations of subject fields are used in the "Plans of Study" section of this catalog. Alphabetization is according to abbreviation.

AAS—African American Studies
AD—Art and Design
ABE—Agricultural and Biological Engineering
AGEC—Agricultural Economics
AGR—Agriculture
AGRY—Agronomy
ANSC—Animal Sciences
ANTH—Anthropology
ASL—American Sign Language
ASM—Agricultural Systems Management
BCHM—Biochemistry
BCM—Building Construction Management Technology
BIOL—Biological Sciences
BTNY—Botany and Plant Pathology
CDFS—Child Development and Family Studies
CE—Civil Engineering
CGT—Computer Graphics Technology
CHE—Chemical Engineering
CHM—Chemistry
CNIT—Computer and Information Technology
COM—Communication
CS—Computer Sciences
CSR—Consumer Sciences and Retailing
EAS—Earth and Atmospheric Sciences
ECE—Electrical and Computer Engineering
ECON—Economics
EDCI—Educational-Curriculum and Instruction
EDPS—Educational-Educational and Psychological Studies
EDST—Educational-Leadership and Cultural Foundations
ENGL—English
ENGR—First Year Engineering
ENTM—Entomology
ENTR—Entrepreneurship
EPCS—Engineering Project in Community Service
FN—Foods and Nutrition
FNR—Forestry and Natural Resources
FS—Food Science
HIST—History
HK—Health and Kinesiology
HONR—Honors
HORT—Horticulture
HSCI—Health Sciences
HTM—Hospitality and Tourism Management
IDIS—Interdisciplinary Studies
IT—Industrial Technology
LA—Landscape Architecture
MA—Mathematics
ME—Mechanical Engineering
MET—Mechanical Engineering Technology
MGMT—Management
NRES—Natural Resources and Environmental Science
NUCL—Nuclear Engineering
OLS—Organizational Leadership and Supervision
PHIL—Philosophy
PHYS—Physics
POL—Political Science
PSY—Psychology
REL—Religious Studies
SOC—Sociology
SPAN—Spanish
STAT—Statistics
VM—Veterinary Medicine
YDAE—Youth Development and Agricultural Education

Graduation Requirements

To earn a baccalaureate degree, a student shall complete resident study at Purdue University for at least two semesters and the enrollment in, and completion of, at least 32 semester credit hours of coursework required and approved for completion of the degree. These courses are expected to be at least junior-level courses.

The College of Agriculture faculty has established that a minimum of 130 semester credit hours must be completed to earn the degree of Bachelor of Science (B.S.), Bachelor of Science in Agricultural Engineering (B.S.A.E.), Bachelor of Science in Biological Engineering (B.S.B.E.), Bachelor of Science in Forestry (B.S.F.), or Bachelor of Science in Landscape Architecture (B.S.L.A.).

Minimum Core Graduation Requirements *

Academic Category	B.S.	B.S.A.E.	B.S.B.E.	B.S.F.	B.S.L.A.
			Semester Credits		
College of Agriculture Orientation					
AGR 10100 and Departmental Orientation	1	1†	1†	1	1
Mathematics and Sciences					
Biological Sciences	8	8	8	8	8
General Chemistry	6	8	8	6	0
Calculus	3	16	16	3	0
Statistics	3	0	0	3	3‡
Additional Mathematics and Sciences	8	9	9	8	9
Minimum Total	28	41	41	28	20
Written and Oral Communication					
First-Year Composition	4	4	4	4	4
Fundamentals of Speech Communication	3	3	3	3	3
Additional Written and Oral Communication	3	3	3	3	3
Minimum Total	10	10	10	10	10
Social Science and Humanities					
Economics	3	3	3	3	3
Other Social Sciences	3–9	3–6	3–6	3–9	3–9
Humanities	6–12	6–9	6–9	6–12	9–15
Minimum Total	18	15	15	18	21
Departmental Requirements and Electives					
Specified and Elective Courses	73	64	67	77	80
Total Credits	**130**	**131**	**134**	**134**	**132**

** Plans of study that lead to the Bachelor of Science, Bachelor of Science in Forestry, or Bachelor of Science in Landscape Architecture degrees must include a minimum of nine credits, or equivalent, of International Understanding electives, three credits of Multicultural Awareness electives, and an approved capstone course or experience. Plans of study leading the Bachelor of Science degree in Agricultural Engineering or Biological Engineering must include a minimum six credits of International Understanding electives, three credits of Multicultural Awareness electives, and an approved capstone course or experience.*

† Students in a Bachelor of Science degree program in Agricultural Engineering or Biological Engineering may fulfill the orientation requirement in ENGR 19500.

‡ Students enrolled in Landscape Architecture may substitute calculus for statistics.

International Understanding, Multicultural Awareness, and Capstone Course Requirements

Baccalaureate degree plans of study must include nine credits of international understanding electives or equivalent (six credits for Bachelor of Science in Agricultural Engineering, or Bachelor of Science in Biological Engineering), a three-credit multicultural awareness course or experience, and a capstone course or experience. International understanding, multicultural awareness, and capstone course credits may also be used to fulfill core curricular requirements, departmental requirements, or electives.

Courses Not Applicable in Undergraduate Plans of Study

The following courses are not applicable as credit toward graduation in any College of Agriculture baccalaureate degree program: CHM 10000; ENGL 10000, 10900; ENGR 19100, 19200, 19300; MA 11100, 12300, 13300, 13400, 15100; PHYS 14900; STAT 11300, 11400; and all General Studies courses except GS 49000.

Credits earned in one of the following courses — MA 15200, 15300, 15400 or MA 15900 — may be used as an unrestricted elective in College of Agriculture undergraduate plans of study, but may not be used as a Mathematics and Sciences elective.

Mathematics and Sciences (28 credits)

The objectives of the mathematics and sciences component of the core curriculum are for students to acquire a foundation of knowledge in mathematics, chemistry, and the biological and physical sciences, an understanding of the scientific method, and the ability to apply their knowledge and problem-solving skills to relevant issues.

Biological Sciences (8 credits)

To fulfill the biological sciences core requirements, all students must complete at least two hours of laboratory credit in biological sciences each week for 32 weeks, or the equivalent. Completion of course sequences is recommended. Courses with an (*) have a laboratory component.

(4) **BIOL 11000** (Fundamentals of Biology I) *
(4) **BIOL 11100** (Fundamentals of Biology II) *
(2) **BIOL 12100** (Biology I: Diversity, Ecology, and Behavior)
(3) **BIOL 13100** (Biology II: Development, Structure, and Function of Organisms)
(1) **BIOL 13600** (Quantitative and Problem Solving Skills)
(1) **BIOL 13700** (Handling Cells and Tissues, Microscopy)
(1) **BIOL 13800** (Information and Communication Skills)
(1) **BIOL 13900** (Measurements and Basic Solution Chemistry)
(2) **BIOL 19500** (First-Year Biology Laboratory) *
(4) **BIOL 20300** (Human Anatomy and Physiology) *
(4) **BIOL 20400** (Human Anatomy and Physiology) *
(4) **BIOL 22100** (Introduction to Microbiology) *
(3) **BIOL 23000** (Biology of the Living Cell)
(3) **BIOL 23100** (Biology III: Cell Structure and Function)
(2) **BIOL 23200** (Laboratory in Biology III: Cell Structure and Function) *
(2) **BIOL 27000** (Cell Structure and Function)
(2) **BIOL 27100** (Laboratory in Cell Structure and Function) *
(2) **BIOL 28000** (Genetics and Molecular Biology)
(2) **BIOL 28100** (Laboratory in Genetics and Molecular Biology) *
(1) **BIOL 29500** (Quantitative Biology of the Living Cell)
(4) **BTNY 21000** (Introduction to Plant Science) *
(4) **HORT 30100** (Plant Physiology) *

General Chemistry (6 credits)

(3) **CHM 11100** (General Chemistry) **and**
(3) **CHM 11200** (General Chemistry)
(4) **CHM 11500** (General Chemistry) **and**
(4) **CHM 11600** (General Chemistry)

Calculus (3 credits)

(5) **MA 16100** (Plane Analytic Geometry and Calculus I)
(4) **MA 16500** (Analytic Geometry and Calculus I)
(3) **MA 22000** (Introduction to Calculus)
(3) **MA 22300** (Introductory Analysis I)
(3) **MA 23100** (Calculus for the Life Sciences I)

Statistics (3 credits)

(3) **STAT 30100** (Elementary Statistical Methods)
(3) **STAT 50100** (Experimental Statistics I)
(3) **STAT 50300** (Statistical Methods for Biology)
(3) **STAT 51100** (Statistical Methods)

Additional Mathematics or Sciences (8 credits)

(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making)
(3) **AGEC 45100** (Applied Econometrics)
(3) **AGRY 25500** (Soil Science)
(3) **AGRY 27000** (Forest Soils)
(3) **AGRY 32000** (Genetics)
(1) **AGRY 32100** (Genetics Laboratory)
(3) **AGRY 33500** (Weather and Climate)
(3) **ANSC 22100** (Principles of Animal Nutrition)
(4) **ANSC 23000** (Physiology of Domestic Animals)
(3) **BCHM 30700** (Biochemistry)
(1) **BCHM 30900** (Biochemistry Laboratory)
(4) **BIOL 22100** (Introduction to Microbiology)
(3) **BIOL 23100** (Biology III: Cell Structure and Function)
(2) **BIOL 23200** (Laboratory in Biology III: Cell Structure and Function)
(3) **BIOL 24100** (Biology IV: Genetics and Molecular Biology)
(2) **BIOL 24200** (Laboratory in Biology IV: Genetics and Molecular Biology)
(2) **BIOL 27000** (Cell Structure and Function)
(2) **BIOL 27100** (Laboratory in Cell Structure and Function)
(2) **BIOL 28000** (Genetics and Molecular Biology)
(2) **BIOL 28100** (Laboratory in Genetics and Molecular Biology)
(2) **BIOL 28600** (Introduction to Ecology and Evolution)
(4) **BTNY 21000** (Introduction to Plant Science)
(3) **BTNY 21100** (Plants and the Environment)
(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **BTNY 30500** (Fundamentals of Plant Classification)
(4) **BTNY 31600** (Plant Anatomy)
(3) **BTNY 35000** (Biotechnology in Agriculture)
(4) **CHM 22400** (Introductory Quantitative Analysis)
(3) **CHM 25500** (Organic Chemistry)
(1) **CHM 25501** (Organic Chemistry Laboratory)
(3) **CHM 25600** (Organic Chemistry)
(1) **CHM 25601** (Organic Chemistry Laboratory)
(4) **CHM 25700** (Organic Chemistry)
(1) **CHM 25701** (Organic Chemistry Laboratory)
(3) **CHM 26100** (Organic Chemistry)
(3) **CHM 26200** (Organic Chemistry)
(1) **CHM 26300** (Organic Chemistry Laboratory)
(1) **CHM 26400** (Organic Chemistry Laboratory)
(3) **CS 15600** (C Programming)
(4) **CS 18000** (Programming I)
(3) **EAS 11100** (Physical Geology)
(3) **EAS 11200** (Earth Through Time)
(3) **EAS 22100** (Survey of Atmospheric Science)
(2) **ENTM 20600** (General Entomology)
(1) **ENTM 20700** (General Entomology Laboratory)
(3) **ENTM 21000** (Introduction to Insect Behavior)
(4) **HORT 30100** (Plant Physiology)
(5) **MA 16200** (Plane Analytic Geometry and Calculus II)
(4) **MA 16600** (Analytic Geometry and Calculus II)
(3) **MA 22400** (Introductory Analysis II)
(3) **MA 23200** (Calculus for the Life Sciences II)
(4) **MA 26100** (Multivariate Calculus)
(3) **NRES 23000** (Survey of Meteorology)
(3) **NRES 25500** (Soil Science)
(4) **PHYS 15200** (Mechanics)
(3) **PHYS 21400** (The Nature of Physics)
(4) **PHYS 22000** (General Physics)
(4) **PHYS 22100** (General Physics)
(3) **PHYS 24100** (Electricity and Optics)
(3) **STAT 50200** (Experimental Statistics II)
(3) **STAT 51100** (Statistical Methods)

Written and Oral Communication (10 credits)

The written and oral communication component of the core curriculum will enhance students' abilities to communicate with clarity in formal, informal, and technical contexts, to develop and convey logical arguments when discussing problems or ideas, and to evaluate critically the arguments of others. Requirements may be fulfilled by completing one of the following options:

Option 1 (Beginning Freshmen – Regular Credentials)

(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **ENGL 10600** (First-Year Composition)
(3) From American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) **AGR 20100** (Communicating Across Culture), or (3) **YDAE 44000** (Methods of Teaching Agricultural Education)

Option 2 (Beginning Freshmen – Advanced Credentials)

(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **ENGL 10800** (Accelerated First-Year Composition)*
(3) From American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) **AGR 20100** (Communicating Across Culture), or (3) **YDAE 44000** (Methods of Teaching Agricultural Education)

Option 3 (Transfer Students – Three Credits of English Completed)†

(3) **COM 11400** (Fundamentals of Speech Communication)
(3) Transfer credits in freshman English composition, excluding courses equivalent to or similar to ENGL 10000.
(6) From American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) **AGR 20100** (Communicating Across Culture), or (3) **YDAE 44000** (Methods of Teaching Agricultural Education)

Option 4 (Transfer Students – Six Credits of English Completed)†

(3) **COM 11400** (Fundamentals of Speech Communication)
(6) Transfer credits in freshman English composition, excluding courses equivalent or to similar to ENGL 10000.
(3) From American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) **AGR 20100** (Communicating Across Culture), or (3) **YDAE 44000** (Methods of Teaching Agricultural Education)

Students enrolled in curricula leading to the Bachelor of Science in Agricultural Engineering or Bachelor of Science in Biological Engineering degree may use three credits from courses offered by the Department of Foreign Languages and Literatures to fulfill additional Written and Oral Communication requirements if a minimum of six credits are earned in a language.

Social Sciences and Humanities (18 credits)

The objectives of the social sciences component of the core curriculum are for students to acquire a fundamental understanding of economics, sociology, psychology, and political science. These courses will provide students with the ability to examine systematically and quantitatively how economic, social, cultural, and political systems function and interact with one another and understand how individuals and groups contribute to the fabric of our diverse society.

The humanities component of the core curriculum is intended to encourage students to broaden their intellectual perspectives beyond their selected fields of study. It is hoped that by viewing their own lives in a broader context of human experience, and by examining their own preconceptions and beliefs and those of others, students will gain a greater appreciation for the depth and breadth of human culture and their place within it.

A plan of study must include a minimum of 12 credits earned outside of the College of Agriculture that can be applied in the "social sciences and humanities" core curriculum category. Plans of study must include at least three credits of "other social sciences" or "humanities" at the 30000+ level.

Economics (3 credits)

(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)
(3) **AGEC 20400** (Introduction to Resource Economics and Environmental Policy)
(3) **AGEC 21700** (Economics)
(3) **ECON 21000** (Principles of Economics)
(3) **ECON 25100** (Microeconomics)
(3) **ECON 25200** (Macroeconomics)

Plans of study may include **AGEC 21700** or **ECON 21000**, but not both.

**Students who earn an "A" or "B" in ENGL 10800 are exempt one credit of Written and Oral Communication requirements and total graduation requirements. Those who do not earn an "A" or "B" in ENGL 10800 must complete six credits from American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) AGR 20100 (Communicating Across Culture), or (3) YDAE 44000 (Methods of Teaching Agricultural Education).*

† Ten credits are required to fulfill Written and Oral Communication requirements for the baccalaureate degree. The additional two credits may be used in the plan of study at the discretion of the department offering the major.

Other Social Sciences (3–9 credits)

Agricultural Economics*
Agriculture†
Anthropology
Economics
Forestry and Natural Resources‡
Political Science
Psycho-Educational Studies§
Psychological Sciences
Sociology

Humanities (6–12 credits)

Agriculture†
Band//
Educational Leadership and Cultural Foundations ¶
English Literature ◊
Foreign Languages and Literatures**
History
Honors ***
Interdisciplinary Studies
Philosophy
Visual and Performing Arts

International Understanding

All undergraduate plans of study leading to the degree of Bachelor of Science, Bachelor of Science in Forestry, or Bachelor of Science in Landscape Architecture must include a minimum of nine credits from the international understanding electives list, or equivalent study abroad programs, international travel courses, or international work experiences. Six credits are required in programs of study leading to the Bachelor of Science in Agricultural and Biological Engineering degree.

International understanding elective credits may be used to fulfill written and oral communication, social sciences and humanities, or departmental requirements.

In today's rapidly changing international environment, students must broaden their understanding and appreciation of the historic, cultural, linguistic, and geographic diversity of the world's peoples, while enhancing their ability to interact effectively with people from other cultures. The objective of the international understanding component of the core curriculum is to stimulate students to explore the world and responsibly apply their learning and knowledge to global challenges.

Study Abroad Programs or International Travel Courses

In lieu of including nine or more credits of international understanding electives in a plan of study, students may partially or totally fulfill the international understanding requirements by earning credits in an approved study abroad program or international travel course.

Regardless of the academic discipline, all credits earned in an approved study abroad program or international travel course may be used toward the nine-credit international understanding requirement.

International Work Experience

Successful completion of an approved noncredit international work experience (AGR 49500) may be used as follows:

- An experience of 4–7 weeks may be used in lieu of three credits of international understanding electives to fulfill the international understanding requirement.
- A minimum eight-week summer session experience may be used in lieu of six credits of

**Course selection is limited to AGEC 25000, 30500, 34000, 40600, 41000, 41500, 45000. No more than six credits can be taken from Agricultural Economics to fulfill other social sciences requirements.*
† Course selection is limited to AGR 20100.
‡Course selection is limited to FNR 37500.
§ Course selection is limited to EDPS 23500, 26500.
// A maximum of three credits of band may be used to fulfill humanities requirements.
¶ Course selection is limited to EDST 20000.
◊ Course selection is limited to ENGL 22700, 23000, 23100, 23200, 23500, 23700, 23800, 23900, 24000, 24100, 25000, 25700, 26200, 26400, 26600, 26700, 27600, 27900, 33100, 33300, 33500, 33700, 35000, 35100, 36000, 36400, 37200, 37300, 37500, 37700, 37900, 38100, 38200, 38300, 38600, 38700, 39600, 41100, 41200, 41300, 41400, 44100, 44200, 44400, 46200, 46300, 46800, 46900, 49200.
*** A minimum of six credits of a foreign language must be earned to be included in a plan of study.*
**** Course selection is limited to HONR 19900 (Science and Pseudoscience) and HONR 29900 (Insects in Literature and Art).*

international understanding electives to fulfill the international understanding requirement.
- An academic semester experience may be used in lieu of nine credits of international understanding electives.

The total number of credits required for graduation are not reduced when students fulfill international understanding requirements through participation in approved noncredit international work experiences.

International Understanding Electives

International understanding electives include all courses offered by the Department of Foreign Languages and Literatures and those listed below. Proposed additions to this list may be submitted to the Agricultural Faculty Curriculum and Student Relations Committee for consideration. Contact your academic advisor.

(1–4) All Foreign Language and Literatures courses
(3) **AGEC 25000** (Economic Geography of World Food and Resources)
(3) **AGEC 34000** (International Economic Development)
(3) **AGEC 45000** (International Agricultural Trade)
(1–3) **AGR 49300** (Special Topics in International Agriculture)
(0) **AGR 49500** (International Professional Experience in Agriculture, Food, or Natural Resources)
(3) **AGRY 28500** (World Crop Adaptation and Distribution)
(1–3) **AGRY 35000** (Global Awareness)
(3) **AGRY 39900** (Exploring International Agriculture)
(3) **AGRY 57000** (Agronomy in International Development)
(3) **ANSC 29400** (Exploring International Animal Agriculture)
(3) **ANSC 29500** (Exploring International Agriculture)
(3) **ANTH 10000** (Introduction to Anthropology)
(3) **ANTH 20500** (Human Cultural Diversity)
(3) **ANTH 57800** (Peoples of Middle America)
(3) **BTNY 20100** (Plants and Civilization)
(3) **COM 42400** (Communication in International Organizations)
(3) **ECON 37000** (International Trade)
(3) **ECON 46600** (International Economics)
(3) **ENGL 26600** (World Literature: From the Beginnings to 1700 A.D.)
(3) **ENGL 26700** (World Literature: From 1700 A.D. to the Present)
(3) **FNR 23000** (The World's Forests and Society)
(3) **FNR 46000** (International Natural Resources Summer Program)
(3) **FNR 48800** (Global Environmental Issues)
(3) **HIST 24000** (East Asia and Its Historic Transition)
(3) **HIST 24100** (East Asia in the Modern World)
(3) **HIST 24300** (South Asian History and Civilizations)
(3) **HIST 24500** (Introduction to the Middle East History and Culture)
(3) **HIST 27100** (Latin American History to 1824)
(3) **HIST 27200** (Latin American History from 1824)
(3) **HIST 30200** (History of Horticulture)
(3) **HIST 32300** (German History)
(3) **HIST 32400** (Modern France)
(3) **HIST 34000** (Modern China)
(3) **HIST 34100** (History of Africa South of the Sahara)
(3) **HIST 34200** (Africa and the West)
(3) **HIST 34300** (Traditional Japan)
(3) **HIST 34400** (History of Modern Japan)
(3) **HIST 44100** (Africa in the Twentieth Century)
(3) **HIST 47200** (History of Mexico)
(3) **HONR 19900** (Malaria: First World Science v. Third World Disease: A Moral Dilemma?)
(3) **HORT 30600** (History of Horticulture)
(3) **HORT 40300** (Tropical Horticulture)
(3) **HORT 45000** (In The English Landscape: Integrating History, Horticulture, and Landscape Architecture)
(3) **LA 16600** (History and Theory of Landscape Architecture)
(3) **LA 45000** (In The English Landscape: Integrating History, Horticulture, and Landscape Architecture)
(3) **PHIL 33000** (Religions of the East)
(3) **PHIL 33100** (Religions of the West)
(3) **POL 13000** (Introduction to International Relations)
(3) **POL 14100** (Governments of the World)
(3) **POL 23200** (Contemporary Crises in International Relations)
(3) **POL 23500** (International Relations Among Rich and Poor Nations)
(3) **POL 23700** (Modern Weapons and International Relations)
(3) **POL 29000** (Russia: Yesterday, Today, and Tomorrow)
(3) **POL 30400** (Israel and World Politics)
(3) **POL 34400** (Introduction to the Politics of the Third World)
(3) **POL 34500** (West European Democracies in the Post-Industrial Era)
(3) **POL 43300** (International Organization)
(3) **POL 43400** (United States Foreign Policy, Central America and the Caribbean)
(3) **POL 43500** (International Law)
(3) **POL 44200** (Government and Politics in Russia)
(3) **POL 44700** (The British Political System and the Commonwealth of Nations)

Multicultural Awareness – (3 credits)

All undergraduate plans of study leading to the degree of Bachelor of Science, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Biological Engineering, Bachelor of Science in Forestry, or Bachelor of Science in Landscape Architecture must include a minimum of three credits of multicultural awareness electives.

Students must broaden their awareness of the United States domestic, multicultural environment. The objective of the multicultural awareness component of the core curriculum is to stimulate students to become aware of self and others to be better prepared for the workplace and participatory citizenship.

This requirement may be fulfilled through:

- (3) **AGR 20100** (Communicating Across Culture). The AGR 20100 course coordinator and lead instructor will be the assistant dean and director of the College of Agriculture Office of Diversity Programs. The course coordinator is responsible for validating the competency of faculty members responsible for laboratory sections. AGR 20100 credits may be used to fulfill written and oral communication, social science and humanities, or departmental requirements.
- Selection from the multicultural electives course list. All courses must go through a validation process to be added to the list. Courses that include multicultural awareness components developed by College of Agriculture departments will follow this process.
- (0) **AGR 49600** (Multicultural Professional Experience). Successful completion of an approved non-credit multicultural awareness work experience (AGR 49600) of a minimum of 4 weeks duration may be used in lieu of three credits of multicultural awareness electives to fulfill the multicultural awareness requirement. The assistant dean for diversity will be the instructor of record for AGR 49600. Course proposals that address the learning objectives of the experience and define how the culture in which the immersion will take place is different from their native culture will be evaluated for approval by the assistant dean for diversity. Approval is required as a condition for registration.

Multicultural Awareness Electives

Additional courses may be added to this list via approval of the Agricultural Faculty Curriculum and Student Relations Committee that the course syllabus meets the objective of the multicultural requirement in the College of Agriculture. The objective of the multicultural awareness component of the core curriculum is to stimulate students to become aware of self and others to be better prepared for the workplace and participatory citizenship. Students are encouraged to explore coursework outside their own culture.

(3) **AAS 37000** (Black Women Rising)
(3) **AAS 37500** (The Black Family)
(3) **AAS 37600** (The Black Male)
(3) **ANTH 20500** (Human Cultural Diversity)
(3) **ANTH 23000** (Gender Across Cultures)
(3) **ANTH 37900** (Indians of North America)
(3) **ANTH 57800** (Peoples of Middle America)
(3) **CDFS 30100** (Families in a Multicultural Society)
(3) **COM 32800** (Diversity at Work: A Rhetorical Approach)
(3) **COM 38100** (Gender and Feminist Studies in Communication)
(3) **EDCI 28500** (Multiculturalism and Education)
(3) **ENGL 25700** (Literature of Black America)
(3) **ENGL 35800** (Black Drama)
(3) **ENGL 36000** (Gender and Literature)
(3) **HIST 36500** (Women in America)
(3) **HIST 36600** (Hispanic Heritage of the United States)
(3) **HIST 37700** (History and Culture of Native America)
(3) **HIST 39600** (The Afro-American to 1865)
(3) **HIST 39800** (The Afro-American since 1865)
(3) **HK 22600** (Contemporary Women's Health)
(3) **IDIS 48100** (Women of Color in the United States)
(3) **PHIL 20600** (Philosophy of Religion)
(3) **PHIL 22500** (Philosophy of Women)
(3) **PHIL 24200** (Philosophy, Culture and the African American Experience)
(3) **PHIL 33000** (Religions of the East)
(3) **PHIL 33100** (Religions of the West)
(3) **POL 22200** (Women, Politics, and Public Policy)
(3) **POL 32600** (Black Political Participation in America)
(3) **POL 36000** (Women and the Law)
(3) **PSY 23900** (The Psychology of Women)
(3) **PSY 33500** (Stereotyping and Prejudice)
(3) **PSY 36800** (Children's Development in Cross-Cultural Perspective)
(3) **REL 23000** (Religions of the East)
(3) **REL 23100** (Religions of the West)
(3) **SOC 22000** (Social Problems)
(3) **SOC 31000** (Racial and Ethnic Diversity)

(3) **SOC 45000** (Gender Roles in Modern Society)
(3) **SPAN 23500** (Mexican and Latino Culture)
(2–3) **YDAE 38500** (Urban Service-Learning)

Capstone Course or Experience (0–3 credits)

Baccalaureate degree plans of study must include a capstone course or experience. Capstone course credits also may be used to fulfill core curriculum requirements or departmental requirements or electives.

In a capstone experience, students will be challenged to integrate their accumulated knowledge and technical and social skills in order to identify and solve a problem relevant to issues encountered by professionals in their chosen discipline, and to communicate the results of their efforts to their peers. In doing so, students will have the opportunity to demonstrate their ability to adapt to professional situations. It is hoped that this experience will stimulate students' appreciation of the need for lifelong learning and initiate professional and personal liaisons.

The College of Agriculture faculty has approved the following capstone courses and experiences.

(4) **ABE 48500** (Agricultural and Biological Engineering Design)
(4) **ABE 55600** (Biological and Food Process Design)
(4) **AGEC 41100** (Farm Management)
(2) **AGEC 42900** (Agribusiness Marketing Workshop)
(3) **AGEC 43000** (Agricultural and Food Business Strategy)
(1–6) **AGEC 49900** (Thesis)
(1) **AGRY 49800** (Agronomy Senior Seminar) **and** (3) **AGRY 58500** (Soils and Land Use)
(1) **AGRY 49800** (Agronomy Senior Seminar) **and** (3) **AGRY 51200** (Integrated Turfgrass Systems)
(1) **AGRY 49800** (Agronomy Senior Seminar) **and** (1–3) pre-approved faculty supervised research, an Engineering Projects in Community Service (EPICS) project, or an industry or government internship.
(0.5) **ANSC 48100** (Contemporary Issues in Animal Sciences I) **and** (0.5) **ANSC 48300** (Contemporary Issues in Animal Sciences II) and one production/management course selected from ANSC 44000, 44100, 44200, 44300, 44400, 44500, or 44600.
(3) **ASM 49500** (Agricultural Systems Management)
(1) **BCHM 49000** (Undergraduate Seminar) **and** (2–3) credits of **BCHM 49800** (Undergraduate Thesis) or (2–3) credits of **BCHM 49900** (Thesis); or (3) **BCHM 57200** (Advanced Biochemical Techniques)
(1) **BTNY 49700** (Undergraduate Seminar) and (1–3) **BTNY 49800** (Research in Plant Science), or with prior approval of the Department of Botany and Plant Pathology faculty, a study abroad, course project, supervised internship, or other supervised work-related experience equivalent to BTNY 49700 and 49800.
(10) **EDCI 49800** (Supervised Teaching of Agricultural Education)
(1) **ENTM 49200** (Capstone Experience in Entomology I) **and** (1) **ENTM 49300** (Capstone Experience in Entomology II)
(1) **EPICS 40100** (Senior Participation in EPICS) **or** (2) **EPCS 40200** (Senior Participation in EPICS)
(3) **FNR 40800** (Natural Resources Planning)
(3) **FS 44300** (Food Processing III)
(3) **HORT 42500** (Landscape Horticulture Capstone Project)
(1) **HORT 44000** (Public Garden Management)
(1) **HORT 44500** (Strategic Analysis of Horticultural Production and Marketing)
(1) **HORT 49200** (Horticultural Science Capstone Seminar)
(3) **IT 48300** (Facility Design for Lean Manufacturing)
(5) **LA 42600** (Capstone Course in Landscape Architecture)
(3) **YDAE 48000** (Agricultural Communication Capstone Seminar)

Associate in Agriculture Degree Requirements

Subjects	Semester Credits
Mathematics and Basic Sciences	
Calculus or statistics	**3**
Other mathematics and basic sciences	**12**
Written and Oral Communication	
Written communication	**4**
Oral communication	**3**
Social Science and Humanities Electives	
Economics	**3**
Humanities or social sciences	**3**
Departmental Requirements and Electives	
Eighteen or more of the total credits must be earned in College of Agriculture courses	**37**

Associate Degree Program Policies

- Courses used to satisfy Associate in Agriculture degree requirements are those that are used in Bachelor of Science programs of study. All credits are transferable to baccalaureate degree programs.
- Plans of study must be developed in accordance with curricular requirements approved by the College of Agriculture faculty. Agricultural electives must be selected from courses offered or approved by the College of Agriculture faculty.
- Students seeking the Associate in Agriculture degree must have a plan of study approved by the department offering the degree prior to the beginning of the semester in which it is to be awarded.
- Transfer students must complete a minimum of 32 credits of Purdue University courses.
- A maximum of 12 semester credits of elective courses completed under the pass/not-pass grading option may be used in the plan of study.
- A minimum 2.0 graduation index is required to earn the Associate in Agriculture degree.
- Program of study identification will be recorded on official transcripts of graduates.

Professional Experience Program

The College of Agriculture Professional Experience Program includes internships (single periods of supervised work experience) and the Cooperative Education Program (four or more planned periods of supervised work experience). The program combines education on campus with practical, career-oriented experience on the job.

Following are the College of Agriculture Professional Experience Program operating policies:

- Students must have completed the freshman year (30 semester credits) and be in good standing to be eligible.
- A faculty coordinator will represent each participating department in operating the professional experience program in conjunction with students and employers. Faculty coordinators will work as facilitators to aid in establishing professional training opportunities that are beneficial to both students and employers.
- Entry into the College of Agriculture Professional Experience Program is dependent upon the availability of an employer who will provide an appropriate work experience to the student. The faculty coordinator must approve the professional work experience plan and authorize the student's enrollment in the professional experience course. Interested students are not guaranteed entry into the program since employers select students based upon normal interview procedures and the faculty coordinator must approve the position.
- Participating departments will offer a noncredit professional experience course. Students must register and pay the industrial practice fee for each professional experience course. The student must submit a satisfactory summary report for each period of supervised work experience to the departmental faculty coordinator.
- A professional work experience plan must be developed and approved by the student, employer supervisor, and faculty coordinator. Copies of the professional work experience plan will be distributed to the student, employer supervisor, and faculty coordinator on or before the 10th working day of the student's employment.
- The employer will provide salaries, wages, and benefits for registered students in the College of Agriculture Professional Experience Program. Appropriate health and accident insurance should be provided by the student's employer. Students may elect to enroll in a health and accident insurance program offered by the University if they are not covered by another program.
- The student, the employer supervisor, and the faculty coordinator will evaluate each period of supervised work experience.
- To earn a Cooperative Education Certificate at graduation, a student must register for, and successfully complete, four periods of supervised work experience. A minimum total of 52 weeks of supervised work experience must be completed during the four periods.
- Students who successfully complete an internship (minimum 10 weeks of supervised work experience) will be awarded an appropriate certificate by the College of Agriculture upon graduation. Individuals who fulfill the Cooperative Education Program requirements will be awarded an appropriate certificate by the Purdue University Board of Trustees upon graduation.

Dean's Scholars Program

The Dean's Scholars Program provides incoming undergraduate students or current students who have achieved high academic status the honor of being designated a "Dean's Scholar." In addition, the program motivates students

early in their academic programs to participate in rigorous and stimulating academic courses, research, and enrichment activities.

At graduation, students satisfying the Dean's Scholar requirements will have this honor designated on their transcript (Dean's Scholar concentration) and receive a College of Agriculture Dean's Scholar Certificate. This recognition is in addition to the College of Agriculture Honors Program designation that is posted to the student's academic record.

Following are admissions criteria for the Dean's Scholars Program:

- All first-year students who enter the Purdue University College of Agriculture as recipients of the Trustees or Presidential Scholarships are eligible. Also eligible are high school valedictorians and others having a minimum 3.8 cumulative grade point average and a combined Scholastic Aptitude Test score of 1800 or higher, or an ACT score of 27 or higher. Students will be invited to accept a Dean's Scholar status before the new student Summer Advising, Transition, and Registration program, and must accept the invitation prior to the Fall Retreat to participate.
- Second-semester freshmen, sophomores, and transfer students with 60 credits remaining at Purdue may apply if they have a grade point average equal to or greater than 3.5. A written essay stating why the student is interested in being a Dean's Scholar is part of the formal application process. Review of applications will be administered by the Office of Academic Programs and the honors coordinator from the department in which the student is enrolled.

Additional details regarding program policies, requirements, and operations may be obtained at www.ag.purdue.edu/oap.

Honors Program

The College of Agriculture Honors Program provides students with the opportunity to pursue individually designed curricula and to work with a faculty mentor to conduct supervised research or other creative activities. Participants in the honors program are expected to be stimulated, challenged, and rewarded for advanced academic experiences and intellectual activities.

Following are College of Agriculture Honors Program operating policies:

- Students must have completed a minimum of 32 semester credits and have attained a minimum graduation index of 3.25 at the time of admission. Transfer students must complete a minimum of 16 credits at Purdue University before applying for admission. Individual departmental honors programs may establish higher criteria for admission.
- Students will apply for admission to the honors program through their departmental honors committee. Before applying for admission, the student is expected to identify an honors program advisor who has agreed to serve as a mentor and to determine a mutually acceptable honors project. Admission is contingent upon the approval of the departmental honors committee and the College of Agriculture director of academic programs.
- Within the first semester after admission to the honors program, the student is expected to develop a plan of study in cooperation with his or her mentor. Plans of study are to be submitted to the departmental honors committee for approval. While in the honors program, students must achieve minimum 3.0 semester grade indexes. Participants who fail to meet the semester index requirement may continue in the honors program upon recommendation of the departmental honors committee and with the approval of the College of Agriculture director of academic programs.
- Students in the honors program must complete a minimum of 30 credits in residence at the Purdue University West Lafayette campus.
- Under the direction of his or her honors program mentor, the student must complete an honors project of scholarly activity associated with research, teaching, extension, or another area acceptable to the departmental honors committee. A written summary report of the honors project must be submitted to the departmental honors committee for approval. At the discretion of the departmental honors committee, the student may also be required to conduct a seminar regarding his or her honors project.
- To achieve certification as a College of Agriculture Honors Program graduate, the student must successfully complete the approved plan of study and submit a written honors project report that is approved by the departmental honors committee.
- Honors program graduates will receive an appropriate certificate upon graduation, and the academic transcript will indicate successful completion of the College of Agriculture Honors Program.

Integrated Bachelor of Science and Master of Science Program

The College of Agriculture offers an integrated degree program that will enable outstanding undergraduates to obtain a Bachelor of Science and Master of Science (thesis option) after the successful completion of both degree requirements. The program is designed for outstanding students who wish to expedite their education in agriculture beyond the undergraduate level. It is designed to meet the educational and professional needs of highly capable and very motivated students. Only Purdue University undergraduate students qualify for the integrated Bachelor of Science and Master of Science program.

Following are admission criteria and procedures for the program:

- Students must have earned at least 60 credits with a minimum 3.5 grade average at the time of enrollment.
- The student must submit a formal statement of interest.
- A nomination letter from a faculty member must be submitted.
- Three letters of recommendation are required.
- Other criteria may be indicated by the academic department.

Application to the integrated program will normally occur during the first semester of the junior year. If admitted, a student will select or be assigned a faculty advisor prior to beginning the program during the second semester of the junior year. Additional details regarding admission, program policies, requirements, and operations are at www.ag.purdue.edu/oap.

Leadership Development Certificate Program

The Leadership Development Certificate Program is structured to provide students with experience and growth in leadership. Each student, with the guidance and assistance of a leadership coach, will develop his or her own individual leadership learning experience that meets the program's specific requirements.

A student leadership development plan will focus on (1) personal leadership; (2) interpersonal leadership; (3) group and organizational leadership; and (4) community leadership.

Individuals who successfully complete the program will be awarded a Leadership Development Certificate and will have the Leadership Development Certificate Program concentration recorded on their transcript.

Following are admissions criteria for the program:

- Prior to entering the program, the student must complete a minimum of 30 graded credits toward his/her academic major at a post-secondary institution.
- The student must begin the program at least four semesters prior to graduation.
- The student must be in good academic standing when beginning the program and remain in good academic standing to continue in the program.

Additional details regarding program policies, requirements, and operations may be obtained at www.ag.purdue.edu/oap.

Pass/Not-Pass Grading Policy

A student classified as a sophomore or higher who has a minimum 2.0 graduation index may elect the pass/not-pass grading option. A maximum of 21 credits of elective courses under the pass/not-pass grading option can be used toward graduation requirements.

Forestry and Natural Resources Field Experience Policy

Curricula in the Department of Forestry and Natural Resources provide the knowledge to understand and assess the general condition of natural resource systems — focusing on forests, watersheds, and associated flora and fauna. Management of these systems to achieve desired goals is emphasized.

The faculty believes that field experience is critical to understanding forest and water ecosystems. It is also necessary to provide students with practical skills needed to carry out professional duties. Field training is provided through frequent campus-based field exercises. Students are encouraged to take advantage of the numerous summer job opportunities that are available. In addition, students in fisheries and aquatic sciences, forestry, and wildlife attend a five-week field practicum currently in the Upper Peninsula of Michigan. This five-week field practicum is usually taken in the summer session following the sophomore year.

Individual Achievement Credits

The faculty may award credits for work accomplished independently and apart from classroom requirements. This work must represent creative effort and show evidence of personal development, professional attainment, and potential for social usefulness. Such achievement credit can be substituted for elective courses in undergraduate plans of study.

Electives

Undergraduate plans of study include both required and elective courses. Electives are selected in consultation with an academic advisor who will provide approved course listings from which selections are made. Remedial courses cannot be used as electives in plans of study. All electives are subject to the approval of the student's academic advisor.

Plans of Study

In the "Plans of Study" section of this catalog, figures within parentheses, e.g., (3), are credit hours, unless designated otherwise.

Preprofessional Curricula

Preagricultural and Biological Engineering

Students who wish to earn the Bachelor of Science degree in Agricultural Engineering or in Biological Engineering must complete a one-year pre-engineering curriculum. Students may elect to complete either the Preagricultural and Biological Engineering curriculum in the College of Agriculture or the First-Year Engineering Program in the College of Engineering. Upon successful completion of one of these programs, the student is admitted to the undergraduate program of study in agricultural and natural resources engineering or biological and food process engineering.

Credit Hours Required: 34

Freshman Year

First Semester	*Second Semester*
(4) **CHM 11500** (General Chemistry)	(4) **CHM 11600** (General Chemistry) **or**
(4) **ENGL 10600** (First-Year Composition)	(3) **CS 15900** (Programming Applications for Engineers)
(2) **ENGR 19500** (Transforming Ideas to Innovation I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **MA 16500** (Analytic Geometry and Calculus I)	(2) **ENGR 19500** (Transforming Ideas to Innovation II)
(3) Social science or humanities elective	(4) **MA 16600** (Analytic Geometry and Calculus II)
	(4) **PHYS 17200** (Modern Mechanics)
(17)	(17) *

* *Sixteen credits are required if CS 15900 is selected.*

Pre-Environmental Studies

The pre-environmental studies program is intended to serve as a single portal for students entering Purdue with an interest in environmental studies who are undecided as to the particular area or specific program of study in which they wish to enroll. You may take courses and explore different environmental majors during your first year before choosing a specific one. If you wish to begin in a specific departmental program, you may do so without going through the pre-environmental studies program.

Credit Hours Required: 34*

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12200** (Introduction to Natural Resources and Environmental Science Academic Programs)	(4) **ENGL 10600** (First-Year Composition)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	(4) Biological sciences or physical sciences elective
(4) Biological sciences elective	
(3) Introduction to environmental science elective	
(17)	(17)

Prelandscape Architecture†

The one-year program of prelandscape architecture encompasses — in addition to important core classes such as English, mathematics, and science — a broad introduction to the basic ingredients of this profession: design, analysis, graphics methods, communication, and technical skills. The plan of study for the landscape architecture curriculum consists of one year of prelandscape architecture and four years of professional landscape architecture that includes one year of cooperative work experience. The program is coordinated by landscape architecture faculty in the Department of Horticulture and Landscape Architecture.

Credit Hours Required: 35

Freshman Year

First Semester	*Second Semester*
(3) **AD 10500** (Design I)	(4) **ENGL 10600** (First-Year Composition)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **LA 21600** (Landscape Architectural Design I)‡
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(1) **LA 25000** (Architectural Design)‡
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Art and design elective
(3) **LA 10100** (Survey of Landscape Architecture)‡	(4) Biological sciences elective
(3) **LA 11600** (Graphic Communication for Students of Landscape Architecture and Design)‡	(3) Statistics or calculus elective
(4) Biological sciences elective	
(17)	(18)

** Some environmental programs of study require more advanced courses in general chemistry and mathematics.*

† Students who are admitted into the landscape architecture professional program will be required to be equipped with a personal computer. Computer specifications and required software will be published annually. The student will be responsible for the security of the computer.

‡ This is a prelandscape architecture core course and must be completed by the end of the second semester.

Beginning freshmen, transfer, and re-entry students are admitted to the prelandscape architecture program as applications are received, subject to the limitations of available facilities.

Students in the prelandscape architecture curriculum who do not take calculus must establish mathematical competency by passing the MA 15900 advanced credit examination or by enrolling in, and satisfactorily completing, MA 15300 and 15400, or MA 15900. Credits in one of these courses may be used as an elective in the plan of study subject to approval by the student's academic advisor.

Prelandscape architecture students who wish to continue into the landscape architecture professional program must qualify by meeting the following criteria:

1. Overall GPA — The student must be in good academic standing. A minimum overall GPA in the professional landscape architecture program will be reviewed and announced each year at the beginning of the fall semester.

2. Grade point average of passing grades in the following prelandscape architecture core courses. (LA Index): LA 10100, 11600, 21600, and 25000. This grade point average will be reviewed and announced each year at the beginning of the fall semester.

3. The student must have completed 32 credit hours in the prelandscape architecture curriculum.

Transfer students not enrolled in the Purdue University prelandscape architecture curriculum will be admitted to the professional landscape architecture program subject to:

1. Overall GPA — The student must be in good academic standing. A minimum overall GPA in the professional landscape architecture program will be reviewed and announced each year at the beginning of the fall semester.

2. Grade point average of passing grades in the following prelandscape architecture core courses, or equivalent. (LA Index): LA 10100, 11600, 21600, and 25000. This grade point average will be reviewed and announced each year at the beginning of the fall semester.

3. The student must have completed 32 credit hours in the prelandscape architecture curriculum, or approved equivalent courses.

Students not meeting the above criteria may request an interview with the landscape architecture faculty to determine whether or not there are sufficient extenuating circumstances that would indicate a readiness to enter the professional landscape architecture program.

Preveterinary Medicine

The preveterinary medicine curriculum includes courses that are required for admission to the Doctor of Veterinary Medicine degree program offered by the School of Veterinary Medicine. This program of study, coordinated by the College of Agriculture Office of Academic Programs, emphasizes the biological and physical sciences that are foundations for successful study of veterinary medicine. Also, the curriculum includes courses in communication and the social sciences.

Credit Hours Required: 100

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 12400** (Introduction to College of Agriculture Pre Veterinary Medicine Program	(4) **CHM 11600** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **CHM 11500** (General Chemistry)	(3) **MA 22400** (Introductory Analysis II)
(4) **ENGL 10600** (First-Year Composition)	(1) **VM 10200** (Careers in Veterinary Medicine)
(3) **MA 22300** (Introductory Analysis I)	
(16)	(15)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ANSC 22100** (Principles of Animal Nutrition)	(3) **AGRY 32000** (Genetics)
(3) **BIOL 23100** (Biology III: Cell Structure and Function)	(1) **AGRY 32100** (Genetics Laboratory)
(2) **BIOL 23200** (Laboratory in Biology III: Cell Structure and Function)	(3) **CHM 25600** (Organic Chemistry)
(3) **CHM 25500** (Organic Chemistry)	(1) **CHM 25601** (Organic Chemistry Laboratory)
(1) **CHM 25501** (Organic Chemistry Laboratory)	(3) Agricultural elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Economics elective
(3) Humanities elective	(3) Social science elective
(18)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **BCHM 30700** (Biochemistry)	(4) **BIOL 22100** (Introduction to Microbiology)
(4) **PHYS 22000** (General Physics)	(4) **PHYS 22100** (General Physics)
(6) Agricultural electives	(7) Agricultural electives
(3) Humanities elective	(3) Written or oral communication elective
(16)	(18)

3+1 Degree Program

It is possible to earn a Bachelor of Science degree with an animal science or interdisciplinary agriculture major and the Doctor of Veterinary Medicine (D.V.M.) degree in seven years. This combined 3+1 program includes three years of preprofessional courses in the College of Agriculture and four years in the D.V.M. program. The Bachelor of Science degree is awarded after the student has successfully completed all first-year curricular requirements at an accredited college of veterinary medicine. To qualify for the Bachelor of Science degree under the provisions of the 3+1 program, at least 100 preprofessional credits must be earned, and specified course requirements must be fulfilled in either the animal science major or the interdisciplinary agriculture major. Contact an academic advisor in these programs for specific requirements.

Baccalaureate Degree Curricula

Agribusiness Management

Increasing opportunities exist for agricultural graduates to enter managerial positions in business. These businesses may be large or small and may be organized as proprietorships, partnerships, corporations, or cooperatives. They include meat, dairy, and poultry processing industries; grain handling, feed manufacturing, and seed and fertilizer firms; transportation and storage concerns; and wholesale and retail food businesses. Although this Department of Agricultural Economics curriculum gives special emphasis to agriculturally related businesses, its requirements are broad enough to allow adequate preparation for nonagricultural businesses. This option also has enough flexibility to permit you to prepare for an international career in agricultural business and can serve as a foundation for graduate school.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **CHM 11200** (General Chemistry)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **MGMT 20000** (Introductory Accounting)
(3) **CHM 11100** (General Chemistry)	(3) Agribusiness management elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Humanities elective
(3) Social science elective	(3) Written or oral communication elective
(3) Elective	
(16)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or** mathematics/sciences elective*	(3) **AGEC 42600** (Marketing Management of Agricultural Business)
(4) **AGEC 42400** (Financial Management of Agricultural Business)	(3) **AGEC 45100** (Applied Econometrics) **or** mathematics/sciences elective*
(3) Social science or humanities elective	(3) Agribusiness management elective
(3) Written or oral communication elective	(3) Economics elective
(3) Elective	(3) Written or oral communication elective
	(3) Elective
(16)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(3) Agribusiness management elective	(3) **AGEC 43000** (Agricultural and Food Business Strategy)
(5) Agricultural economics electives	(3) Agricultural economics elective
(3) Economics elective	(2) Mathematics or sciences elective
(3) Social science, humanities, or international understanding elective	(3) Social science or humanities elective (30000+ level)
(3) Elective	(5) Electives
(17)	(16)

** Student must complete quantitative techniques for firm decision-making or applied econometrics.*

Agricultural and Natural Resources Engineering

Energy, food, water, and the environment are vital for the well-being of both current and future generations. The Agricultural and Natural Resources Engineering program prepares students for careers that address these and other vital concerns. Students in this Department of Agricultural and Biological Engineering program can specialize in either machine systems engineering or environmental and natural resources engineering. Employment opportunities for graduates include: product engineering, design and test engineering for machinery and manufacturing industries, engineering for consulting firms and government agencies responsible for environmental conservation and quality, facilities design, safety engineering, engineering management, private consulting, teaching in colleges and universities, and research in industry and government. See www.purdue.edu/ABE for updates to the plan of study shown below.

Credit Hours Required for Graduation: 131*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(4) **CHM 11500** (General Chemistry)	(4) **CHM 11600** (General Chemistry) **or** (3) **CS 15900** (Programming Applications for Engineers)
(4) **ENGL 10600** (First-Year Composition)	(3) **COM 11400** (Fundamentals of Speech Communication)
(2) **ENGR 19500** (Transforming Ideas to Innovation I)	(2) **ENGR 19500** (Transforming Ideas to Innovation II)
(4) **MA 16500** (Analytic Geometry and Calculus I)	(4) **MA 16600** (Analytic Geometry and Calculus II)
(3) Social science elective†	(4) **PHYS 17200** (Modern Mechanics)
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ABE 20500** (Computations for Engineering Systems)	(3) **ABE 21000** (Biological Applications of Material and Energy Balances)
(1) **ABE 29000** (Sophomore Seminar)	(4) **MA 26200** (Linear Algebra and Differential Equations)
(4) **MA 26100** (Multivariate Calculus)	(3) **ME 27400** (Basic Mechanics II)
(3) **ME 27000** (Basic Mechanics I)	(3) **NUCL 27300** (Mechanics of Materials)
(3) **PHYS 24100** (Electricity and Optics)	(3) Humanities elective†
(4) Biological sciences elective	(16)
(18)	

Junior Year

Fifth Semester	*Sixth Semester*
(3) **ABE 30500** (Physical Properties of Biological Materials)	(3) **ABE 33000** (Design of Machine Components)
(4) **ABE 32500** (Soil and Water Resource Engineering)	(3) **ECE 20100** (Linear Circuit Analysis I)
(3) **AGRY 25500** (Soil Science)	(4) Biological sciences elective
(4) **CE 34000** (Hydraulics) **and** (1) **CE 34300** (Elementary Hydraulics Laboratory) **or** (4) **ME 30900** (Fluid Mechanics)	(3) Economics elective†
	(3) Elective
(3) Elective	
(17)	(16)

** The plan of study must include six credits of international understanding electives or equivalent.*
† A total of 18 credit hours of general education electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.

Senior Year

Seventh Semester	*Eighth Semester*
(3) **ABE 43500** (Hydraulic Control Systems for Mobile Equipment)	(4) **ABE 48500** (Agricultural and Biological Engineering Design)
(3) **ABE 45000** (Finite Element Method in Design and Optimization)	(3) Engineering technical elective
(1) **ABE 49000** (Professional Practice in Agricultural and Biological Engineering)	(3) Humanities elective*
(3) Agricultural elective	(3) Social science or humanities elective*
(3) Engineering technical elective	(1) Elective†
(3) Written or oral communication elective*	
(16)	(14)

Agricultural Communication

Students interested in agriculture and communication can combine studies in these two disciplines to prepare for careers in mass media, advertising, public relations, sales and marketing, and governmental information agencies. Agricultural communicators are educated to gather scientific and technical information about agriculture and prepare it for use by both farm and consumer audiences. This program is coordinated by staff in the Department of Youth Development and Agricultural Education.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 12100** (Introduction to Youth Development and Agricultural Education Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 25000** (Mass Communication and Society)
(4) **ENGL 10600** (First-Year Composition)	(3) Agricultural elective
(3) **YDAE 15200** (Agricultural Communication Seminar)	(3) Social science elective
(3) Agricultural elective	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(3) **COM 25200** (Writing for Mass Media)
(3) **COM 20400** (Critical Perspectives on Communication)	(3) **COM 31800** (Principles of Persuasion)
(3) **MA 22000** (Introduction to Calculus)	(3) **STAT 30100** (Elementary Statistical Methods)
(3) Agricultural elective	(3) Humanities elective
(3) Written or oral communication elective	(3) Mathematics or sciences elective
(18)	(18)

** A total of 18 credit hours of general education electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.*

† Two credits of electives are required if (3) CS 15900 (Programming Applications for Engineers) is completed during the second semester of the freshman year.

Junior Year

Fifth Semester	*Sixth Semester*
(3) **COM 31100** (Copy Editing)	(3) **YDAE 46000** (Agricultural Publishing)
(3) Agricultural elective	(3) Agricultural elective
(3) Humanities elective	(5) Communication or agricultural communication electives
(3) Mathematics or sciences elective	(2) Mathematics or sciences elective
(4) Electives	(3) Social science or humanities elective (30000+ level)
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **YDAE 48000** (Agricultural Communication Capstone Seminar)	(3) Agricultural elective
(3) Agricultural elective	(3) Communication or agricultural communication elective
(3) Communication or agricultural communication elective	(3) Science communication elective
(3) Social science, humanities, or international understanding elective	(3) Social science or humanities elective
(4) Electives	(3) Elective
(16)	(15)

Agricultural Economics

Agricultural economics offers training that will be helpful for students contemplating employment as managers; extension workers; government employees; and employees in finance, marketing, and managerial positions in agricultural businesses. It also prepares qualified students to take graduate work as further preparation for college or government work, or for commercial economic research work. This Department of Agricultural Economics option has enough flexibility to permit a student to prepare for an international career in agricultural economics.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **AGEC 31000** (Farm Organization) **or** (3) **AGEC 33000** (Management Methods for Agricultural Business)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(3) **MGMT 20000** (Introductory Accounting)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Written or oral communication elective
(3) Social science elective	(3) Elective
(3) Elective	(15)
(16)	

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or** mathematics/sciences elective*	(3) **AGEC 45100** (Applied Econometrics) **or** mathematics/sciences elective*
(3) Agricultural economics elective	(3) Agricultural economics elective
(3) Economics elective	(3) Humanities elective
(3) Social science, humanities, or international understanding elective	(3) Written or oral communication elective
(5) Electives	(5) Electives
(17)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(8) Agricultural economics electives	(3) Agricultural economics elective
(3) Economics elective	(2) Mathematics or sciences elective
(3) Social science or humanities elective (30000+ level)	(3) Social science or humanities elective
(3) Elective	(8) Electives
(17)	(16)

Agricultural Education

The agricultural education program prepares individuals to teach agricultural science and business, as well as related subjects in junior high, high school, or college. Students also pursue careers in agricultural service industries. To earn teacher certification in Indiana, graduates must have either 4,000 clock hours of unsupervised agricultural work experience or 1,500 clock hours of supervised work experience in agriculture. Faculty of the Department of Youth Development and Agricultural Education coordinate the agricultural education curriculum.

** Student must complete quantitative techniques for firm decision making or applied econometrics.*

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **AGEC 21700** (Economics)
(0.5) **AGR 12100** (Introduction to Youth Development and Agricultural Education Academic Programs)	(4) **BTNY 21000** (Introduction to Plant Science)
(4) **BIOL 11000** (Fundamentals of Biology I)	(2) **EDCI 27000** (Introduction to Educational Technology and Computing)
(3) **COM 11400** (Fundamentals of Speech Communication)	(4) **ENGL 10600** (First-Year Composition)
(3) **FS 16100** (Science of Food)	(3) Technical elective
(3) Technical elective	
(14)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **CHM 11100** (General Chemistry)	(3) **ASM 20100** (Construction and Maintenance)
(3) **EDCI 20500** (Exploring Teaching as a Career)	(3) **CHM 11200** (General Chemistry)
(3) **EDCI 28500** (Multiculturalism and Education)	(3) **EDPS 23500** (Learning and Motivation)
(3) **MA 22000** (Introduction to Calculus)	(3) **EDPS 26500** (The Inclusive Classroom)
(3) Introductory welding elective	(3) **HORT 20100** (Plant Propagation)
(3) Technical elective	(3) Technical elective
(18)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 25500** (Soil Science)	(3) **AGRY 37500** (Crop Production Systems)
(3) **AGRY 32000** (Genetics)	(3) **ANSC 22100** (Principles of Animal Nutrition)
(3) **EDST 20000** (History and Philosophy of Education)	(3) **YDAE 31900** (Planning Agricultural Science and Business Programs)
(2) **ENTM 20600** (General Entomology)	(1) **YDAE 44100** (Field Experience in Agricultural Education Programs)
(3) **YDAE 31800** (Coordination of Supervised Agricultural Experience Programs)	(3) Agricultural economics elective
(3) Technical elective	(3) Humanities elective
(17)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **STAT 30100** (Elementary Statistical Methods)	(10) **EDCI 49800** (Supervised Teaching of Agricultural Education)
(3) **YDAE 44000** (Methods of Teaching Agricultural Education)	(1) **ENTM 31700** (Insects in Agricultural Education)
(3) Forestry and natural resources or natural resources and environmental science elective	(2) Directed elective
(3) International understanding elective	
(3) Social science or humanities elective (30000+ level)	
(3) Technical elective	
(18)	(13)

Agricultural Finance

Agricultural finance offers specialized training for students interested in agricultural and agribusiness finance. With the advent of large, modern agricultural businesses, the need for persons trained in agricultural financial management has increased. Qualified students graduating with this Department of Agricultural Economics option background will find careers in commercial banks, farm credit administration, and other organizations where specialized knowledge of capital and finance in farm and agriculturally related businesses is required.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **CHM 11200** (General Chemistry)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **MGMT 20100** (Management Accounting I)
(3) **AGEC 33000** (Management Methods for Agricultural Business) **or** (3) **ENTR 20000** (Introduction to Entrepreneurship and Innovation)	(3) **STAT 30100** (Elementary Statistical Methods)
	(3) Written or oral communication elective
	(5) Electives
(3) **CHM 11100** (General Chemistry)	
(3) **MGMT 20000** (Introductory Accounting)	
(3) Humanities elective	
(16)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or** mathematics/sciences elective*	(3) **AGEC 31000** (Farm Organization)
(4) **AGEC 42400** (Financial Management of Agricultural Business)	(3) **AGEC 45100** (Applied Econometrics) **or** mathematics/sciences elective*
(3) Economics elective	(3) Agribusiness management elective
(3) Social science, humanities, or international understanding elective	(3) Agricultural economics elective
	(3) Written or oral communication elective
	(2) Elective
(3) Elective	
(16)	(17)

** Student must complete quantitative techniques for firm decision-making or applied econometrics.*

Senior Year

Seventh Semester	*Eighth Semester*
(3) Agribusiness management elective or (4) **AGEC 41100** (Farm Management)*	(3) **AGEC 43000** (Agricultural and Food Business Strategy) or agribusiness management elective
(3) Agricultural economics elective	(3) **AGEC 52400** (Agricultural Finance)
(3) Economics elective	(2) Mathematics or sciences elective
(3) Social science or humanities elective (30000+ level)	(3) Social science elective
	(3) Social science or humanities elective
(3) Elective	(3) Elective
(15)	(17)

Agricultural Systems Management

Agricultural systems management, a Department of Agricultural and Biological Engineering program of study, prepares individuals to organize and manage technology-based businesses, with emphasis on planning and directing an industry or business project with responsibility for results. Agricultural systems management students develop skills in communication, business management, computers, and agricultural sciences in addition to technical courses. National and international job opportunities include manufacturing and processing operations, technical services and diagnostics, building and equipment systems, materials handling and process flow, product application and sales, product evaluation and education, and production agriculture.

Credit Hours Required for Graduation: 131
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **ASM 10500** (Agricultural Systems Computations and Communication)
(0.5) **AGR 11100** (Introduction to Agricultural and Biological Engineering Academic Programs)	(3) **CHM 11200** (General Chemistry)
(3) **ASM 10400** (Introduction to Agricultural Systems)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **PHYS 21400** (The Nature of Physics) or (4) **PHYS 22000** (General Physics)
(4) **ENGL 10600** (First-Year Composition)	(4) Biological sciences elective
(3) **MA 22000** (Introduction to Calculus)	
(3) Humanities selective	
(17)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **AGEC 22000** (Marketing Farm Products)
(3) **ASM 21100** (Technical Graphic Communications)	(3) **AGRY 25500** (Soil Science)
(1) **ASM 22100** (Career Opportunities Seminar)	(3) **ASM 24500** (Materials Handling and Processing)
(3) **ASM 22200** (Crop Production Equipment)	(1) **ASM 35000** (Safety in Agriculture)
(3) Agricultural selective	(2) Mathematics or sciences selective†
(4) Biological sciences selective	(3) Statistics selective
(17)	(15)

** If (4) AGEC 41100 (Farm Management) is completed, only two credits of agribusiness management electives are required in the sixth semester.*

† One credit is required if (4) PHYS 22000 (General Physics) is completed in the second semester.

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **AGEC 31000** (Farm Organization) **or** (3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **ASM 33600** (Environmental Systems Management)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(3) **ASM 34500** (Power Units and Power Trains)	(3) **ASM 33300** (Facilities Planning and Management)
(3) **OLS 25200** (Human Relations in Organizations) **or** (3) **OLS 27400** (Applied Leadership)	(2) Agricultural selective
(3) Communication selective	(3) International understanding elective
(3) Elective	(3) Social science selective
(18)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 45500** (Agricultural Law) **or** (3) **MGMT 45500** (Legal Background for Business I)	(3) **ASM 49500** (Agricultural Systems Management)
(3) **ASM 42000** (Electric Power and Controls)	(3) Agricultural selective
(1) **ASM 42100** (Senior Seminar)	(3) Agricultural systems management selective (40000+ level)
(3) Agricultural selective	(3) Humanities selective
(3) Social science or humanities selective	(3) Social science or humanities selective (30000+ level)
(3) Elective	
(16)	(15)

Agronomic Business and Marketing

Agronomic business and marketing prepares students to meet the high demand for technically trained men and women in businesses related to cropping systems. Students are provided with the flexibility to tailor plans of study that meet their individualized interests and needs by combining strengths in business, marketing, and plant agriculture. As a result, graduates are well prepared for a wide variety of positions. These include the marketing and technical representation of crop inputs, farm management, farm finance, and a broad array of additional agribusiness-related opportunities. The unique advantage of this option is the dual strength generated in business and in the science supporting crop system management.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) Core economics elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(3) Agronomy crops elective	
(18)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGRY 25500** (Soil Science)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **AGRY 36500** (Soil Fertility)
(4) **CHM 25700** (Organic Chemistry)	(3) **BTNY 30400** (Introductory Weed Science)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Social science or humanities elective
(3) Social science elective	(3) Elective
(3) Written or oral communication elective	
(17)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 33000** (Management Methods for Agricultural Business) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **AGRY 32000** (Genetics)	(3) Agronomy elective
(3) **ENGL 42000** (Business Writing)	(3) Humanities elective
(3) Agricultural economics, economics, management, or organizational leadership and supervision elective	(6) Electives
(3) Agronomy elective	
(1) Science elective	
(16)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(1) **AGRY 49800** (Agronomy Senior Seminar)	(2) **ENTM 20600** (General Entomology)
(3) Agricultural economics, economics, management, or organizational leadership and supervision elective	(1) **ENTM 20700** (General Entomology Laboratory)
(3) Agronomy elective	(3) Agricultural economics, economics, management, or organizational leadership and supervision elective
(3) International understanding elective	(4) Mathematics or sciences elective
(4) Mathematics or sciences elective	(3) Social science or humanities elective (30000+ level)
(3) Social science or humanities elective	(3) Elective
(17)	(16)

Animal Agribusiness

This Department of Animal Sciences option is best suited for those interested in the business aspects of the animal industry and gaining knowledge in accounting, sales and marketing, and business management. Graduates are in high demand in sales and service areas of animal health products; feed, production, equipment firms; sales companies; and animal representatives for banks and lending organizations, insurance companies, marketing, advertising, and public relations agencies. You may be well suited for animal agribusiness if you enjoy meeting people, have good oral communication skills, and have a proficiency in writing. Experience with the raising and managing of animals is essential since you will be expected to interact and relate to managers, veterinarians, businessmen, and owners of animal enterprises. An interest in economics, marketing, and business management is important.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(1) **ANSC 18100** (Orientation to Animal Sciences)
(0.5) **AGR 11400** (Introduction to Animal Sciences Academic Programs)	(4) **BIOL 11100** (Fundamentals of Biology II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(4) **ENGL 10600** (First-Year Composition)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Humanities elective
(3) **MA 22000** (Introduction to Calculus)	(2) Mathematics or sciences elective
(3) Animal sciences elective	
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **AGRY 32000** (Genetics)
(3) **ANSC 22100** (Principles of Animal Nutrition)	(4) **ANSC 23000** (Physiology of Domestic Animals)
(1) Animal sciences elective	(3) Agricultural economics, economics, or management elective
(3) Chemistry or physics elective	(3) Social science elective
(3) Economics elective	(3) Written or oral communication elective
(3) Humanities elective	
(16)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Agricultural economics, economics, or management elective
(3) Additional written communication elective	(4) Animal genetics elective
(3) Agricultural economics, economics, or management elective	(3) Animal physiology elective
(3) Animal nutrition elective	(3) Social science or humanities elective
(3) Animal products elective	(3) Elective
(15)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(0.5) **ANSC 48100** (Contemporary Issues in Animal Sciences I)	(0.5) **ANSC 48300** (Contemporary Issues in Animal Sciences II)
(3) Agricultural economics, economics, or management elective	(3) Agricultural economics, economics, or management elective
(3) Animal production or management elective	(2) Animal sciences elective
(2) Animal sciences elective	(10) Electives
(3) Social science or humanities elective (30000+ level)	
(6) Electives	
(17.5)	(15.5)

Animal Production

Opportunities associated with this Department of Animal Sciences option include the leadership and management of any enterprise that deals with the daily production and care of animals. This could include food animal species of beef or dairy cattle, chickens, ducks, fish, sheep, swine, or turkeys or many companion animal species including cats, dogs, horses, and many exotic or zoo animals. This option is the best balance of science, business, and the enterprise management subjects designed to prepare someone to manage live animals. Enterprises might be owned by the graduate's family, the graduate, or any agribusiness company. Graduates of this option often serve as technical support staff for input companies, as field or services representatives in various commodity organizations or livestock sale companies, or as procurement officers for meat processing companies. You may be well suited for an animal production management career if you enjoy working with and supervising people, have good oral communication and problem-solving skills as well as competencies working with animals directly. Experience with the raising and managing of animals is essential since you will be expected to interact and relate to managers, veterinarians, businessmen, and owners of animal enterprises.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(1) **ANSC 18100** (Orientation to Animal Sciences)
(0.5) **AGR 11400** (Introduction to Animal Sciences Academic Programs)	(4) **BIOL 11100** (Fundamentals of Biology II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(4) **ENGL 10600** (First-Year Composition)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Humanities elective
(3) **MA 22000** (Introduction to Calculus)	(3) Elective
(3) Animal sciences elective	
(17)	(18)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ANSC 22100** (Principles of Animal Nutrition)	(3) **AGRY 32000** (Genetics)
(4) **CHM 25700** (Organic Chemistry)	(4) **ANSC 23000** (Physiology of Domestic Animals)
(3) Economics elective	(3) **BCHM 30700** (Biochemistry)
(1) Mathematics or sciences elective	(3) Financial management elective
(3) Social science elective	(3) Humanities elective
(3) Written or oral communication elective	
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(4) **BIOL 22100** (Introduction to Microbiology)	(4) Animal genetics elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Animal physiology elective
(3) Animal nutrition elective	(3) Enterprise management elective
(3) Animal products elective	(3) Non-animal sciences production or management elective
(3) Social science or humanities elective	(3) Elective
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(0.5) **ANSC 48100** (Contemporary Issues in Animal Sciences I)	(0.5) **ANSC 48300** (Contemporary Issues in Animal Sciences II)
(3) Additional written communication elective	(3) Animal sciences elective
(3) Animal production or management elective	(3) Non-animal sciences production or management elective
(2) Animal sciences elective	(9) Electives
(3) Enterprise management elective	
(3) Social science or humanities elective (30000+ level)	
(14.5)	(15.5)

Animal Products

This Department of Animal Sciences option is meant to prepare students who are interested in the live animal production of quality animal products combined with the ever-growing processing industry of safe, healthful food. Opportunities include product-development managers; quality control technicians; process supervisors; meat scientists; live-animal procurement managers; and sales positions in milk, egg, or meat processing industries. Many graduates become graders and inspectors at the farm or manufacturing level for milk, meat, and eggs; commercial and seedstock animal production evaluators and breeders; or university or industry researchers and product developers. Graduates continuing for the M.S. or Ph.D. degree in growth and development, food science, agricultural economics, or muscle biology qualify for numerous research, teaching, or extension positions in industry, government, universities, and colleges. You should enjoy the challenge of applying basic information to the solution of practical problems as well as the challenges of working in the consumer-driven food industries.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(1) **ANSC 18100** (Orientation to Animal Sciences)
(0.5) **AGR 11400** (Introduction to Animal Sciences Academic Programs)	(4) **BIOL 11100** (Fundamentals of Biology II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(4) **ENGL 10600** (First-Year Composition)
(3) **COM 11400** (Fundamentals of Speech Communication)	(2) Animal sciences elective
	(3) Humanities elective
(3) **MA 22000** (Introduction to Calculus)	
(3) Animal sciences elective	
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ANSC 22100** (Principles of Animal Nutrition)	(3) **AGRY 32000** (Genetics)
(4) **CHM 25700** (Organic Chemistry)	(4) **ANSC 23000** (Physiology of Domestic Animals)
(3) Economics elective	(3) **BCHM 30700** (Biochemistry)
(1) Mathematics or sciences elective	(1) **BCHM 30900** (Biochemistry Laboratory)
(3) Social science elective	(3) Business management elective
(3) Written or oral communication elective	(3) Humanities elective
(17)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(4) **BIOL 22100** (Introduction to Microbiology)	(4) Animal genetics elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Animal physiology elective
(3) Animal nutrition elective	(3) Social science or humanities elective
(3) Animal products elective	(6) Electives
(3) Elective	
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(0.5) **ANSC 48100** (Contemporary Issues in Animal Sciences I)	(0.5) **ANSC 48300** (Contemporary Issues in Animal Sciences II)
(3) Animal production or management elective	(3) Additional written communication elective
(3) Food science elective	(3) Animal sciences elective
(3) Social science or humanities elective (30000+ level)	(8) Electives
(6) Electives	
(15.5)	(14.5)

Animal Science

Four concentrations have been developed in this Department of Animal Sciences major to meet the needs of students desiring to acquire a strong foundation of science courses as they pursue their goal of working in a scientific field. Depending upon the student's career goal, he/she may specialize in pre-veterinary medicine, biotechnology, animal behavior/well-being, or animal biosciences. Each of the concentrations has a similar core of basic science and animal science course requirements, but the student can concentrate in a particular area of interest through an elective block. For additional information regarding the academic requirements for each concentration, go to www.ansc.purdue.edu/ugrad/StudentHandbook.pdf.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(1) **ANSC 18100** (Orientation to Animal Sciences)
(0.5) **AGR 11400** (Introduction to Animal Sciences Academic Programs)	(4) **BIOL 11100** (Fundamentals of Biology II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(4) **CHM 11600** (General Chemistry)
(4) **CHM 11500** (General Chemistry)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	(3) Animal sciences elective
(16)	(18)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ANSC 22100** (Principles of Animal Nutrition)	(3) **AGRY 32000** (Genetics)
(3) **CHM 25500** (Organic Chemistry)	(1) **AGRY 32100** (Genetics Laboratory)
(1) **CHM 25501** (Organic Chemistry Laboratory)	(4) **ANSC 23000** (Physiology of Domestic Animals)
(3) Economics elective	(3) **CHM 25600** (Organic Chemistry)
(3) Science elective	(1) **CHM 25601** (Organic Chemistry Laboratory)
(3) Written or oral communication elective	(3) Humanities elective
(16)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **BCHM 30700** (Biochemistry)	(3) Additional written communication elective
(1) **BCHM 30900** (Biochemistry Laboratory)	(4) Animal genetics elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Animal physiology elective
(3) Animal nutrition elective	(3) Humanities elective
(3) Animal products elective	(3) Science elective
(3) Social science elective	
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(0.5) **ANSC 48100** (Contemporary Issues in Animal Sciences I)	(0.5) **ANSC 48300** (Contemporary Issues in Animal Sciences II)
(3) Animal production or management elective	(2) Animal sciences elective
(3) Animal sciences elective	(3) Science elective
(3) Science elective	(3) Social science or humanities elective (30000+ level)
(3) Social science or humanities elective	(9) Electives
(3) Elective	(17.5)
(15.5)	

Animal Behavior/Well-Being Concentration

Students who desire a balance of animal production, behavioral sciences, and well-being are best served by the animal behavior/well-being concentration. Careers are available as managers of animal production units (e.g., beef cow-calf or feed lot manager, flock supervisor, swine manager, or horse trainer and breeder). Limited career opportunities may be available as an animal trainer, zoo environmental enhancement specialist, companion animal consultant, breed association animal well-being specialist, or pet safety education specialist for a humane society. Students interested in advanced studies could become animal behavior consultants or university scientists.

Animal Biosciences Concentration

The animal biosciences concentration is intended for students seeking careers in research or technical services related to animal nutrition, growth and development, animal genetics, reproduction, animal well-being, and management. Students choosing this concentration should have a strong interest and curiosity in discovery and should have enjoyed their high school biology, chemistry, mathematics, and physics courses. Those who aspire to careers in research and teaching in colleges and universities or in agribusinesses should consider this option. This concentration can also be excellent preparation for professional careers such as human medical doctors; veterinarians; dentists; and positions in the nutrition, genomics, and pharmaceutical industries. Graduates continuing for an M.S. or Ph.D. in animal science qualify for numerous research, teaching, or extension positions in industry, government, universities, and colleges.

Biotechnology Concentration

The biotechnology concentration is intended for students seeking careers in the biotechnology and pharmaceutical industries, or for students who are interested in pursuing advanced degrees in the fields of molecular and cell biology or biochemistry. Those in this concentration should have a strong interest in cell or molecular biology and biochemistry and the desire to apply this interest toward the improvement of animal production, health, and well-being. A degree in animal biotechnology will prepare the student for a research-oriented career working on problems as diverse as the development of novel antibiotics that will protect animals and humans from disease to the use of gene-splicing techniques to improve the growth characteristics and the health of animals. Students successfully completing this program are sought especially by biotechnological industries currently offering unprecedented opportunities. Graduates continuing for M.S. or Ph.D. degrees in animal science qualify for numerous research, teaching, or extension positions in industry, government, universities, and colleges.

Preveterinary Medicine Concentration

The preveterinary medicine concentration includes all courses that are required for admission to the School of Veterinary Medicine and the Bachelor of Science degree in Animal Science. Students are prepared to apply to the School of Veterinary Medicine at Purdue during their third year and, if accepted, can earn the bachelor's degree upon successfully completing the first year of veterinary school. Admission requirements for other veterinary medicine schools may differ slightly. Students will also be prepared for other scientific careers in animal industries including animal genetics and molecular biology, nutrition, physiology, and behavior, and they can apply to medical or dental schools or to M.S. or Ph.D. graduate degree programs.

3+1 Degree Program

It is possible to earn a Bachelor of Science degree with an animal science or interdisciplinary agriculture major and the Doctor of Veterinary Medicine (D.V.M.) degree in seven years. This combined 3+1 program includes three years of preprofessional courses in the College of Agriculture and four years in the D.V.M. program. The Bachelor of Science degree is awarded after the student has successfully completed all first-year curricular requirements at an accredited college of veterinary medicine. To qualify for the Bachelor of Science degree under the provisions of the 3+1 program, a student must earn at least 100 preprofessional credits and must fulfill specified course requirements in either the animal science or interdisciplinary agriculture major. Contact an academic advisor in these programs for specific requirements.

Applied Meteorology

This option provides an education in meteorology with emphasis in application of meteorology and climatology to land-based problems. This Department of Agronomy option focuses on operational forecasting, climatic assessment, and problem solving using a broad range of skills and understandings. Graduates are placed with agricultural extension, air pollution control boards, utilities, and private-sector weather and environmental consulting firms. This option fulfills the general requirements of the Civil Service Commission for a professional meteorologist, providing career options with the National Weather Service, the Department of Commerce, and the Department of Agriculture. Students also are well prepared for graduate study in agricultural meteorology, forest meteorology, climatology, biometeorology, micrometeorology, remote sensing, and hydrology.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(1) **EAS 13700** (Freshman Seminar in Earth and Atmospheric Sciences)
(3) **CHM 11100** (General Chemistry)	(4) **ENGL 10600** (First-Year Composition)
(5) **MA 16100** (Plane Analytic Geometry and Calculus I)	(5) **MA 16200** (Plane Analytic Geometry and Calculus II)
(3) Elective	
(16)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(1) **AGRY 39800** (Agronomy Seminar)	(3) **AGRY 33500** (Weather and Climate)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) **EAS 12000** (Introduction to Geography)
(3) **CS 15800** (C Programming)	(4) **MA 26200** (Linear Algebra and Differential Equations)
(4) **MA 26100** (Multivariate Calculus)	(3) **PHYS 24100** (Electricity and Optics)
(4) **PHYS 17200** (Modern Mechanics)	(3) Social science or humanities elective
(3) Core economics elective	
(18)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 37500** (Crop Production Systems)	(3) **AGRY 43200** (Atmospheric Dynamics I)
(3) **AGRY 43100** (Atmospheric Thermodynamics)	(1) **AGRY 44200** (Synoptic Laboratory II)
(1) **AGRY 44100** (Synoptic Laboratory I)	(3) **STAT 51100** (Statistical Methods)
(3) Humanities elective	(3) Humanities elective
(3) Social science elective	(7) Electives
(3) Social science or humanities elective (30000+ level)	
(16)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGRY 43300** (Atmospheric Dynamics II)	(3) **AGRY 33700** (Environmental Hydrology)
(1) **AGRY 44300** (Synoptic Laboratory III)	(3) **AGRY 53600** (Environmental Biophysics)
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) **EAS 43400** (Weather Analysis and Forecasting)
(3) **AGRY 53500** (Boundary Layer Meteorology)	(3) **EAS 53200** (Atmospheric Physics I)
(3) **AGRY 54500** (Remote Sensing of Land Resources)	(3) International understanding elective
(3) **EAS 53500** (Atmospheric Observations and Measurements)	
(3) Written or oral communication elective	
(17)	(15)

Biochemistry

Biochemistry, the chemistry of living things, is concerned with the basic materials and processes of life itself. Biochemists seek to determine the chemical nature of such fundamental processes as photosynthesis, the hormonal control of metabolism, and selective gene expression. Knowledge of the chemical structures and interactions of biological materials will help us understand life processes and solve basic biological problems. Trained biochemical scientists are much in demand for research and teaching in universities and for research and development work in chemical and pharmaceutical industries, medical laboratories, and state and federal governments. Students who complete the Department of Biochemistry curriculum satisfactorily will be prepared to assume responsible professional positions, undertake advanced work at the graduate level, or attend medical school.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **BIOL 13100** (Biology II: Development, Structure, and Function of Organisms)
(0.5) **AGR 11500** (Introduction to Biochemistry Academic Programs)	(4) **CHM 11600** (General Chemistry)
(2) **BCHM 10000** (Introduction to Biochemistry)	(4) **ENGL 10600** (First-Year Composition)
(2) **BIOL 12100** (Biology I: Diversity, Ecology, and Behavior)	(3) **MA 23200** (Calculus for Life Sciences II)
(4) **CHM 11500** (General Chemistry)	(3) Social science elective
(3) **COM 11400** (Fundamentals of Speech Communication)	
(3) **MA 23100** (Calculus for Life Sciences I)	
(15)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **BCHM 22100** (Analytical Biochemistry)	(1) **BCHM 29000** (Experimental Design Seminar)
(3) **BIOL 23100** (Biology III: Cell Structure and Function)	(2) **BCHM 32200** (Analytical Biochemistry)
(2) **BIOL 23200** (Laboratory in Biology III: Cell Structure and Function)	(3) **BCHM 36100** (Molecules)
(1) **CHM 26300** (Organic Chemistry Laboratory)	(3) **BIOL 24100** (Biology IV: Genetics and Molecular Biology)
(3) **CHM 26505** (Organic Chemistry)	(2) **BIOL 24200** (Laboratory in Biology IV: Genetics and Molecular Biology)
(3) Humanities elective	(1) **CHM 26400** (Organic Chemistry Laboratory)
(3) Elective	(3) **CHM 26605** (Organic Chemistry)
	(3) Social science or humanities elective
(18)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(1) **BCHM 39000** (Professional Development Seminar)	(3) **AGEC 21700** (Economics)
(3) **BCHM 46200** (Metabolism)	(4) **CHM 37200** (Physical Chemistry)
(4) **PHYS 22000** (General Physics)	(4) **PHYS 22100** (General Physics)
(3) Science elective	(3) Science elective
(3) Written or oral communication elective	(3) Social science, humanities, or international understanding elective
(3) Elective	
(17)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **BCHM 46300** (Macromolecular Machines)	(2) **BCHM 46500** (Biochemistry of Life Processes)
(1) **BCHM 49800** (Undergraduate Thesis)	(1) **BCHM 49000** (Undergraduate Seminar)
(3) **STAT 50300** (Statistical Methods for Biology)	(2) **BCHM 49800** (Undergraduate Thesis)
(3) Humanities elective	(3) Science elective
(3) Social science or humanities elective (30000+ level)	(3) Social science, humanities, or international understanding elective
(3) Elective	(3) Elective
(16)	(14)

Biological and Food Process Engineering

The need for high quality, naturally derived biological products, such as foods, pharmaceuticals, and biochemicals has produced a high demand for knowledgeable, capable engineers who understand the complexity and sophistication of biological materials and who have solid engineering skills. Employment and career advancement opportunities have been excellent for graduates, not only nationally, but also internationally. Graduates who have a biological engineering degree with a major in biological and food process engineering are successful in various areas in the biological and food process industry, such as research development, process and product development, environmental and corporate engineering, and management. Within the degree program, students can specialize in either food process engineering or cellular and biomolecular engineering. Technical electives vary between these two specializations and, with guidance from a faculty advisor, some course substitutions may be appropriate. Dual-degree options, including two additional required semesters, are offered with biochemistry or pharmaceutical sciences. See www.purdue/edu/ABE for updates to the following plan of study.

Credit Hours Required for Graduation: 134*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(4) **CHM 11500** (General Chemistry)	(4) **CHM 11600** (General Chemistry)
(4) **ENGL 10600** (First-Year Composition)	(3) **COM 11400** (Fundamentals of Speech Communication)
(2) **ENGR 19500** (Transforming Ideas to Innovation I)	(2) **ENGR 19500** (Transforming Ideas to Innovation II)
(4) **MA 16500** (Analytic Geometry and Calculus I)	(4) **MA 16600** (Analytic Geometry and Calculus II)
(3) General education elective†	(4) **PHYS 17200** (Modern Mechanics)
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ABE 20100** (Thermodynamics in Biological Systems I)	(3) **ABE 20200** (Thermodynamics in Biological Systems II)
(1) **ABE 29000** (Sophomore Seminar)	(3) **BCHM 22100** (Analytical Biochemistry) **or** (3) **FN 20500** (Food Science I)
(4) **CHM 25700** (Organic Chemistry)	(3) **MA 26500** (Linear Algebra)
(4) **MA 26100** (Multivariate Calculus)	(3) **MA 26600** (Ordinary Differential Equations)
(3) **PHYS 24100** (Electricity and Optics)	(3) Engineering technical elective
	(3) General education elective†
(15)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **ABE 30100** (Modeling and Computational Tools in Biological Engineering)	(3) **ABE 37000** (Biological/Microbial Kinetics and Reaction Engineering)
(3) **ABE 30300** (Applications of Physical Chemistry to Biological Processes)	(4) **ABE 45400** (Transport Processes in Biological and Food Process Systems)
(3) **BIOL 23000** (Biology of the Living Cell)	(4) **BIOL 22100** (Introduction to Microbiology)
(1) **BIOL 29500** (Quantitative Biology of the Living Cell) **or** (2) **IT 22600** (Biotechnology Laboratory I)*	(3) **CHE 37800** (Heat and Mass Transfer)
(3) **CHE 37700** (Momentum Transfer)	(3) Engineering elective
(3) General education elective†	
(16)	(17)

** The credit total in the biological and food processing plan of study is 135 if IT 22600 is selected.*

† Eighteen credit hours of general education electives must be chosen in accordance with the general education document available in the Student Academic Center in Room 201 of the Agricultural and Biological Engineering Building. Of the 18 credit hours, three must be economics (ECON 25100 or 25200) and three must be an additional communication elective. The plan of study must include six credits of international understanding elective or equivalent.

Senior Year

Seventh Semester	*Eighth Semester*
(1) **ABE 49000** (Professional Practice in Agricultural and Biological Engineering)	(3) **ABE 46000** (Sensors and Process Control)
(4) **ABE 55500** (Biological and Food Processing Unit Operations)	(4) **ABE 55600** (Biological and Food Process Design)
(4) Biological science or food science elective‡	(3) **ABE 58000** (Process Engineering of Renewable Resources)
(3) Engineering elective	(3) Biological science or food science elective*
(6) General education electives†	(3) General education elective†
(18)	(16)

Culinary Science

Culinary science is a curriculum offered cooperatively by Ivy Tech Community College and the Department of Food Science in the Purdue University College of Agriculture. Students complete the first two years of this program by enrolling in the Ivy Tech Community College Culinary Arts curriculum. Upon successful completion of this associate degree program, students may transfer to the culinary science curriculum in the College of Agriculture to complete the third and fourth years of the program.

Credit Hours Required for Graduation: 130‡
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year – Enrolled at Ivy Tech Community College

First Semester	*Second Semester*
(3) **ENGL 111** (English Composition)	(4) **BIOL 121** (General Biology I)
(1) **HOSP 100** (Introduction to Culinology)	(3) **HOSP 103** (Soups, Stocks, and Sauces)
(2) **HOSP 101** (Sanitation and First Aid)	(3) **HOSP 104** (Nutrition)
(3) **HOSP 102** (Basic Food Theory and Skills)	(3) **HOSP 110** (Meat Fabrication)
(3) **HOSP 105** (Introduction to Baking)	(3) **MATH 201** (Brief Calculus I)
(1) **IVYT 101** (First-Year Seminar)	
(3) Social science elective	
(16)	(16)

Sophomore Year – Enrolled at Ivy Tech Community College

Third Semester	*Fourth Semester*
(5) **CHEM 105** (General Chemistry I)	(4) **BIOL 201** (General Microbiology)
(3) **COMM 101** (Fundamentals of Public Speaking)	(2) **HOSP 203** (Menu, Design and Layout)
(3) **HOSP 201** (Hospitality Purchasing and Cost Control)	(3) **HOSP 210** (Classical Cuisine)
(3) **HOSP 212** (Garde Manager)	(3) **HOSP 211** (Specialized Cuisine)
(3) Humanities elective	(3) **HOSP 220** (Biology and Chemistry of Food Manufacturing)
	(3) **HOSP 280** (Co-op/Internship)
(17)	(18)

** This is a restricted elective. See the list of approved courses in the Agricultural and Biological Engineering Student Handbook. Selectives are FN 31500, FN 53400, FS 36100, FS 36200, FS 45300, and FS 46700.*

† Eighteen credit hours of general education electives must be chosen in accordance with the general education document available in the Student Academic Center in Room 201 of the Agricultural and Biological Engineering Building. Of the 18 credit hours, three must be economics (ECON 25100 or 25200) and three must be an additional communication elective. The plan of study must include six credits of international understanding elective or equivalent.

‡ Freshman and sophomore year course numbers and titles are offered by Ivy Tech Community College. Junior and senior year course numbers and titles are offered by Purdue University.

Junior Year – Enrolled at Purdue University

Fifth Semester	*Sixth Semester*
(4) **CHM 11600** (General Chemistry)	(4) **CHM 25700** (Organic Chemistry)
(1) **FS 29800** (Sophomore Seminar)	(1) **CHM 25701** (General Chemistry Laboratory)
(1) **FS 36100** (Food Plant Sanitation)	(1) **FS 34000** (Introduction to Food Law and Regulations)
(3) **FS 36200** (Food Microbiology)	(3) **FS 34100** (Food Processing I)
(4) **PHYS 22000** (General Physics)	(3) **STAT 30100** (Elementary Statistical Methods)
(3) Humanities elective	(3) Written or oral communication elective
(16)	(15)

Senior Year – Enrolled at Purdue University

Seventh Semester	*Eighth Semester*
(3) **BCHM 30700** (Biochemistry)	(3) **AGEC 21700** (Economics)
(1) **BCHM 30900** (Biochemistry Laboratory)	(3) **FS 44300** (Food Processing III)
(1) **FS 23500** (Food Sensory Science)	(4) **FS 45300** (Food Chemistry)
(3) **FS 44200** (Food Processing II)	(1) **FS 53000** (Food Ingredient Technology)
(1) **FS 48200** (Food Science Senior Seminar)	(3) Social science or humanities elective
(3) Social science or humanities elective (30000+ level)	(3) Elective
(3) Written or oral communication elective (30000+ level)	
(15)	(17)

Entomology

This Department of Entomology option prepares students for advanced or graduate studies as further preparation for research or college teaching. Students who graduate with a baccalaureate degree in entomology are prepared for a variety of career opportunities. Graduates are employed within federal and state experiment stations; cooperative extension services; public health entomology; regulatory entomology; in city, county, state, and industrial entomology; and in sales and promotion or research work within the pesticide industry. Some are employed as sanitarians, museum curators, or technicians in insect physiology and toxicology.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)
Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 11700** (Introduction to Entomology Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(4) Biological sciences elective
(4) **ENGL 10600** (First-Year Composition)	(3) Insect behavior and ecology elective
(2) **ENTM 20600** (General Entomology)	(3) Physics elective
(1) **ENTM 20700** (General Entomology Laboratory)	
(3) Calculus elective	
(3) Elective	
(17)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(4) **CHM 25700** (Organic Chemistry)	(3) **BCHM 30700** (Biochemistry)
(4) Biological sciences elective	(1) **BCHM 30900** (Biochemistry Laboratory)
(3) Humanities elective	(3) Ecology elective
(4) Insect diversity and identification elective	(3) Entomology elective
	(3) Philosophy of science, logic, or critical thinking elective
	(3) Social science elective
(15)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) Entomology elective
(1) **ENTM 49200** (Capstone Experience in Entomology I)	(3) Environmental issues elective
(3) Economics elective	(3) Insect structure and function elective
(3) Insect pest management elective	(3) Social science or humanities elective
(3) Statistics elective	(3) Elective
(3) Written or oral communication elective	
(16)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(3) Humanities elective	(1) **ENTM 49300** (Capstone Experience in Entomology II)
(6) Mathematics and sciences electives	(3) Botanical sciences elective
(3) Social science or humanities elective (30000+ level)	(6) Mathematics and sciences electives
(6) Electives	(7) Electives
(18)	(17)

Environmental Plant Studies

Offered by the Department of Botany and Plant Pathology, the environmental plant studies option is appropriate for students who have a strong interest in environmental issues and wish to have a green-plant emphasis to their program of study. The option provides a firm grounding in plant biology and at the same time focuses on present and impending environmental issues of the world. Students are encouraged to participate in the College of Agriculture's international studies minor. Environmental plant studies would be a good specialty for students interested in working for nature organizations, herbaria, environmental consulting, or other firms where bioremediation solutions are required.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 11600** (Introduction to Botany and Plant Pathology Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BTNY 21000** (Introduction to Plant Science)	(3) **MA 22400** (Introductory Analysis II)
(3) **CHM 11100** (General Chemistry)	(3) Social science or humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22300** (Introductory Analysis I)	
(15)	(15)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **AGRY 25500** (Soil Science)
(3) **BTNY 30500** (Fundamentals of Plant Classification)	(3) **AGRY 32000** (Genetics)
(4) **CHM 25700** (Organic Chemistry)	(1) **AGRY 32100** (Genetics Laboratory)
(4) **HORT 30100** (Plant Physiology)	(3) **POL 22300** (Introduction to Environmental Policy)
(3) Elective	(3) Directed elective
	(3) International understanding elective
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **BCHM 30700** (Biochemistry)	(3) **BTNY 20700** (The Microbial World: Food, Agriculture, and History)
(1) **BCHM 30900** (Biochemistry Laboratory)	(3) **BTNY 30200** (Plant Ecology)
(3) **PHIL 29000** (Environmental Ethics)	(3) **STAT 50300** (Statistical Methods for Biology)
(3) Physics elective	(3) Directed elective
(3) Social science or humanities elective	(3) Humanities elective
(3) Elective	(3) Written or oral communication elective
(16)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 40600** (Natural Resource and Environmental Economics)	(9) Directed electives
(3) **ASM 33600** (Environmental Systems Management)	(3) Humanities elective
(4) **BTNY 31600** (Plant Anatomy)	(5) Electives
(3) **BTNY 49800** (Research in Plant Science)	
(3) Social science or humanities elective (30000+ level)	
(16)	(17)

Environmental Soil Science

If you would like to understand how toxic and hazardous wastes, sludges, metals, fertilizers, pesticides, and animal wastes impact the environment, then you should enroll in the Department of Agronomy environmental soil science option. This option prepares graduates for exciting and rewarding careers in environmental soil science. The environmental soil scientist is a technically trained individual who protects and improves the environment. As national interest in the quality of our environment increases, opportunities for environmental soil scientists will continue to grow. The job opportunities are numerous and encompass a broad range of possibilities in government, environmental consulting firms, public health services, and federal research laboratories. Students are especially qualified for graduate study in environmental sciences, soil microbiology, soil chemistry, and soil physics.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(4) **CHM 11600** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **MA 22400** (Introductory Analysis II)
(4) **CHM 11500** (General Chemistry)	(3) Core economics elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22300** (Introductory Analysis I)	
(16)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGRY 25500** (Soil Science) **or** (3) **AGRY 27000** (Forest Soils)	(4) **PHYS 22000** (General Physics)
(3) **AGRY 29000** (Introduction to Environmental Science)	(3) **STAT 30100** (Elementary Statistical Methods)
(4) **CHM 25700** (Organic Chemistry)	(3) Humanities elective
(1) **CHM 25701** (Organic Chemistry Laboratory)	(3) Plant science elective B
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Elective
(3) Soil science elective A	
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 38500** (Environmental Soil Chemistry)	(3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D
(4) **PHYS 22100** (General Physics)	(3) Directed elective A–E
(3) Directed elective A–E	(3) Engineering elective C
(3) Humanities elective	(3) Plant science elective B
(3) International understanding elective	(3) Social science or humanities elective
	(3) Written or oral communication elective
(16)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGRY 34900** (Soil Ecology)	(3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D
(3) **AGRY 46500** (Soil Physical Properties)	(6) Directed electives A–E
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) Social science elective
(3) **AGRY 56500** (Soil Classification, Genesis, and Survey)	(4) Electives
(3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D	
(3) Social science or humanities elective (30000+ level)	
(16)	(16)

Farm Management

Farm management prepares people for home farm management, professional farm management, or understanding the challenge of managing a farm. Emphasis is placed on production, financial, marketing, and management strategies in this Department of Agricultural Economics curriculum.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **AGEC 31000** (Farm Organization)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(3) Production agriculture elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Social science elective
(3) Humanities elective	(3) Written or oral communication elective
(3) Production agriculture elective	(3) Elective
(16)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **AGEC 45100** (Applied Econometrics) or mathematics/sciences elective*
(2) **AGEC 32100** (Futures and Options Market Applications)	(3) Agricultural economics elective
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) or mathematics/sciences elective*	(3) Economics elective
(1) **AGEC 42000** (Grain and Grain Products Marketing) **or** (1) **AGEC 42100** (Livestock and Meat Marketing)	(3) Production agriculture elective
(3) Written or oral communication elective	(3) Social science or humanities elective
(3) Elective	(3) Elective
(15)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(4) **AGEC 41100** (Farm Management)	(2) Mathematics or sciences elective
(4) **AGEC 42400** (Financial Management of Agricultural Business)	(3) Production agriculture elective
(3) Economics elective	(3) Social science or humanities elective (30000+ level)
(3) Production agriculture elective	(6) Electives
(3) Social science, humanities, or international understanding elective	
(17)	(14)

Fisheries and Aquatic Sciences

The fisheries and aquatic sciences program prepares students for professional careers in fisheries research and management, information and education, and interdisciplinary investigations of environmental problems. Emphasis is on fresh water systems. Graduates receive a Bachelor of Science degree and meet certification requirements of the American Fisheries Society. This Department of Forestry and Natural Resources curriculum has common core requirements with the forestry, natural resources, and wildlife curricula. Sustainable management of the natural resource system — focusing on forests, watersheds, and associated flora and fauna to meet the needs of society — is emphasized.

Credit Hours Required for Graduation: 133
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11900** (Introduction to Forestry and Natural Resources Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	
(15)	(16)

** Student must complete quantitative techniques for firm decision-making or applied econometrics.*

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(2) **BIOL 28600** (Introduction to Ecology and Evolution)
(3) **FNR 20300** (Freshwater Ecology)	(3) **FNR 21000** (Natural Resource Information Management)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals)	(3) **FNR 25100** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
(1) **FNR 24200** (Laboratory in Ecology and Systematics of Fishes and Mammals)	(1) **FNR 25200** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **FNR 35100** (Aquatic Sampling Techniques)
(3) Written or oral communication elective	(3) Soil science or forest soils elective
(16)	(15)

Summer Session

(2) **FNR 37000** (Natural Resources Practicum)
(4) **FNR 37100** (Fisheries and Aquatic Sciences Practicum)
(6)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **FNR 23000** (The World's Forests and Society)	(3) **FNR 30500** (Conservation Genetics)
(3) **FNR 36500** (Natural Resources Issues, Policy, and Administration)	(3) **FNR 37500** (Human Dimensions of Natural Resource Management)
(3) **FNR 40600** (Natural Resource and Environmental Economics)	(3) **FNR 45300** (Fish Physiology) **or** (3) **FNR 45500** (Fish Ecology)
(3) **FNR 54500** (Fisheries Management)	(3) Physical science elective
(2) Ecotoxicology or wildlife disease elective	(3) Elective
(3) Social science or humanities elective	
(17)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **BTNY 55500** (Aquatic Botany)	(3) **FNR 40800** (Natural Resources Planning)
(1) **FNR 47000** (Fundamentals of Planning)	(3) **FNR 45200** (Aquaculture)
(3) Ethics elective	(3) Social science or humanities elective
(3) Humanities elective	(8) Electives
(3) Physical science elective	
(3) Elective	
(16)	(17)

Food Industry Marketing and Management

This Department of Agricultural Economics program is designed for students preparing for careers in sales and management of food manufacturing, wholesaling, and retailing operations. Students are given a broad education in food economics, marketing, and management, which prepares them for successful careers in the food distribution system of the twenty-first century. Graduates are employed by food manufacturing firms, independent grocery firms, chain store organizations, affiliated wholesale groups, grocery product wholesalers, food service distributors, food brokerage firms, and related organizations.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **AGEC 33000** (Management Methods for Agricultural Business) **or** (3) **ENTR 20000** (Introduction to Entrepreneurship and Innovation)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(3) **CHM 11100** (General Chemistry)	(3) **CHM 11200** (General Chemistry)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **MGMT 20000** (Introductory Accounting)
(3) Food business management elective	(3) Written or oral communication elective
(3) Social science elective	
(16)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(4) **AGEC 42400** (Financial Management of Agricultural Business)	(3) **AGEC 33300** (Food Distribution — A Retailing Perspective)
(3) **AGEC 42600** (Marketing Management of Agricultural Business)	(3) **AGEC 45100** (Applied Econometrics) **or** mathematics/sciences elective*
(3) Economics elective	(3) Food business management elective
(3) Social science, humanities, or international understanding elective	(3) Humanities elective
(3) Elective	(3) Written or oral communication elective
(16)	(3) Elective
	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or** mathematics/sciences elective*	(3) **AGEC 43000** (Agricultural and Food Business Strategy)
(3) Economics elective	(3) **FS 44300** (Food Processing III)
(3) Food business management elective	(3) Food business management elective
(3) Social science or humanities elective	(2) Mathematics or sciences elective
(4) Electives	(3) Social science or humanities elective (30000+ level)
	(3) Elective
(16)	(17)

** Student must complete quantitative techniques for firm decision-making or applied econometrics.*

Food Manufacturing Operations

The food manufacturing operations curriculum offered by the Department of Food Science prepares individuals for managerial positions in food processing plants and related operations. This program combines studies in food science, management, and supervision to prepare graduates for a variety of supervisory and managerial roles in food manufacturing.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11800** (Introduction to Food Science Academic Programs)	(4) **CHM 11600** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(4) **ENGL 10600** (First-Year Composition)
(4) **CHM 11500** (General Chemistry)	(3) **MA 22400** (Introductory Analysis II)
(3) **FS 16100** (Science of Food)	(1) Elective
(3) **MA 22300** (Introductory Analysis I)	
(1) Elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **COM 11400** (Fundamentals of Speech Communication)	(4) **BIOL 22100** (Introduction to Microbiology)
(1) **FS 29800** (Sophomore Seminar)	(2) **FS 24500** (Food Packaging)
(3) **MGMT 20000** (Introductory Accounting)	(3) **OLS 25200** (Human Relations in Organizations)
(4) **PHYS 22000** (General Physics)	(3) Economics elective
(3) Statistics elective	(3) Social science, humanities, or international understanding elective
(3) Written or oral communication elective	
(17)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **ASM 42000** (Electric Power and Controls)	(3) **FS 34100** (Food Processing I)
(1) **FS 36100** (Food Plant Sanitation)	(3) Humanities elective
(3) **FS 36200** (Food Microbiology)	(6) Management electives
(2) **FS 36300** (Food Microbiology Laboratory)	(3) Written or oral communication elective
(3) **OLS 27400** (Applied Leadership)	(2) Restricted foods elective
(3) Management elective	
(15)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **FS 44200** (Food Processing II)	(1) **FS 34000** (Introduction to Food Law and Regulations)
(1) **FS 44400** (Statistical Process Control)	(3) **FS 44300** (Food Processing III)
(1) **FS 48200** (Food Science Senior Seminar)	(2) **FS 44600** (Food Process Automation)
(3) Humanities elective	(3) Management elective
(3) Restricted foods elective	(2) Restricted foods elective
(3) Social science elective	(3) Social science elective (30000+ level)
(3) Elective	(3) Elective
(17)	(17)

Food Science

Food science, a curriculum of the Department of Food Science, is an interdisciplinary field that applies the basic sciences, mathematics, and engineering to convert agricultural commodities into edible foods and beverages through various processing steps. Food processing involves not only the foods themselves, but also the packaging, storage, and distribution of the foods. This results in many jobs in industry, government, distribution, marketing, advertising, consumer relations, and other related fields.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11800** (Introduction to Food Science Academic Programs)	(4) **CHM 11600** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(4) **ENGL 10600** (First-Year Composition)
(4) **CHM 11500** (General Chemistry)	(3) **MA 22400** (Introductory Analysis II)
(3) **FS 16100** (Science of Food)	(1) Elective
(3) **MA 22300** (Introductory Analysis I)	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(4) **BIOL 22100** (Introduction to Microbiology)	(3) **BCHM 30700** (Biochemistry)
(3) **CHM 25500** (Organic Chemistry)	(1) **BCHM 30900** (Biochemistry Laboratory)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) **CHM 25600** (Organic Chemistry)
(1) **FS 23500** (Food Sensory Science)	(2) **FS 24500** (Food Packaging)
(1) **FS 29800** (Sophomore Seminar)	(4) **PHYS 22000** (General Physics)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Written or communication elective
(2) Elective	
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(1) **FS 36100** (Food Plant Sanitation)	(4) **CHM 22400** (Introductory Quantitative Analysis)
(3) **FS 36200** (Food Microbiology)	(3) **FN 31500** (Fundamentals of Nutrition)
(2) **FS 36300** (Food Microbiology Laboratory)	(3) **FS 34100** (Food Processing I)
(3) Economics elective	(4) **FS 45300** (Food Chemistry)
(3) Social science, humanities, or international understanding elective	(1) **FS 53000** (Food Ingredient Technology)
(3) Written or communication elective	(2) Elective
(1) Elective	
(16)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **FS 44200** (Food Processing II)	(1) **FS 34000** (Introduction to Food Law and Regulations)
(1) **FS 44400** (Statistical Process Control)	(3) **FS 44300** (Food Processing III)
(1) **FS 48200** (Food Science Senior Seminar)	(4) **FS 46700** (Food Analysis)
(6) Humanities electives	(3) Social science or humanities elective
(6) Electives	(3) Social science or humanities elective (30000+ level)
	(2) Elective
(17)	(16)

Forestry

The forestry program prepares students for professional careers with organizations that manage forest and related lands. Students apply biological, ecological, economic, and social knowledge to develop and administer forest management plans. Graduates receive a Bachelor of Science in Forestry degree. The program is accredited by the Society of American Foresters. This Department of Forestry and Natural Resources curriculum has common core requirements with the fisheries and aquatic sciences, natural resources, and wildlife curricula. Emphasis is on the sustainable management of natural resource systems — focusing on forests, watersheds, and associated flora and fauna to meet the needs of society.

Credit Hours Required for Graduation: 134
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11900** (Introduction to Forestry and Natural Resources Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **FNR 22500** (Dendrology)	(3) **AGRY 27000** (Forest Soils)
(3) **FNR 23000** (The World's Forests and Society)	(2) **BIOL 28600** (Introduction to Ecology and Evolution)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals) **or** (3) **FNR 25100** (Ecology and Systematics of Amphibians, Reptiles, and Birds)	(3) **FNR 21000** (Natural Resource Information Management)
(1) **FNR 24200** (Laboratory in Ecology and Systematics of Fishes and Mammals)	(1) **FNR 25200** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **FNR 35300** (Natural Resources Measurement)
(3) Microeconomics or economics elective	(3) Written or oral communication elective
(16)	(15)

Summer Session

(2) **FNR 37000** (Natural Resources Practicum)
(4) **FNR 37200** (Forestry Practicum)
(6)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **FNR 33100** (Forest Ecosystems)	(3) **FNR 33900** (Principles of Silviculture)
(3) **FNR 35700** (Fundamental Remote Sensing)	(3) **FNR 35500** (Quantitative Methods for Resource Management)
(3) **FNR 36500** (Natural Resources Issues, Policy, and Administration)	(3) **FNR 37500** (Human Dimensions of Natural Resource Management)
(3) **FNR 40600** (Natural Resource and Environmental Economics)	(3) **FNR 40700** (Forest Economics)
(3) **FNR 43400** (Tree Physiology)	(3) Forest health elective
(3) Social science or humanities elective	(3) Elective
(18)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **FNR 40900** (Timber Management)	(3) **FNR 30100** (Wood Products and Processing)
(1) **FNR 47000** (Fundamentals of Planning)	(3) **FNR 30500** (Conservation Genetics)
(3) Ethics elective	(3) **FNR 40800** (Natural Resources Planning)
(3) Humanities elective	(3) Social science or humanities elective
(6) Electives	(2) Elective
(16)	(14)

Horticultural Production and Marketing

Horticultural production and marketing prepares students in the production of horticultural crops or management of horticultural enterprises. Graduates may manage greenhouses or nurseries, floral or plant shops, garden centers, orchards, vegetable farms, and farm markets. They may be involved with development, distribution, or sales of equipment, chemicals, or plant materials. This curriculum is offered by the Department of Horticulture and Landscape Architecture.

Credit Hours Required for Graduation: 130*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BTNY 21000** (Introduction to Plant Science)	(1) **HORT 11000** (Survey of Horticulture)
(3) **CHM 11100** (General Chemistry)	(3) **HORT 20100** (Plant Propagation)
(4) **ENGL 10600** (First-Year Composition)	(3) Calculus elective
(3) **HORT 10100** (Fundamentals of Horticulture)	(3) Humanities elective
(3) Elective	
(18)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **BCHM 30700** (Biochemistry)
(3) **AGRY 25500** (Soil Science)	(1) **BCHM 30900** (Biochemistry Laboratory)
(4) **CHM 25700** (Organic Chemistry)	(3) **BTNY 30100** (Introductory Plant Pathology)
(3) Social science elective	(2) **ENTM 20600** (General Entomology)
(3) Statistics elective	(1) **ENTM 20700** (General Entomology Laboratory)
(2) Elective	(3) Humanities elective
(18)	(3) Career elective
	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **AGRY 32000** (Genetics)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(4) **HORT 30100** (Plant Physiology)	(3) **BTNY 30400** (Introductory Weed Science)
(3) English or communication elective (20000+ level)	(3) **BTNY 35000** (Biotechnology in Agriculture)
(3) Social science or humanities elective (30000+ level)	(3) Horticultural production elective
(16)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(4) **HORT 43500** (Principles of Marketing and Management for Horticultural Businesses)	(1) **HORT 44500** (Strategic Analysis of Horticulture Production and Marketing)
(3) Business elective	(1) **HORT 51300** (Nutrition of Horticulture Crops)
(3) Career elective	(1) **HORT 54100** (Postharvest Technology of Fruit and Vegetables)
(3) Horticultural production elective	(6) Career electives
(3) Social science or humanities elective	(6) Electives
(16)	(15)

** Before graduation, a minimum of eight weeks (320 hours) of employment is required in a horticultural enterprise related to the student's chosen field.*

Horticultural Science

Horticultural science is an option that includes training to improve plants through genetic manipulation and to investigate new methods of propagation, growth, handling, and marketing of horticultural crops. Horticultural scientists work at colleges and universities, state and federal experiment stations, and public or private laboratories and foundations. This Department of Horticulture and Landscape Architecture curriculum prepares students for scientifically oriented careers such as technicians in plant breeding, propagation, and research industries, and it is a preparatory program for students interested in graduate school.

Credit Hours Required for Graduation: 130*†
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BTNY 21000** (Introduction to Plant Science)	(1) **HORT 11000** (Survey of Horticulture)
(3) **CHM 11100** (General Chemistry)	(3) **HORT 20100** (Plant Propagation)
(4) **ENGL 10600** (First-Year Composition)	(3) Calculus elective
(3) **HORT 10100** (Fundamentals of Horticulture)	(3) Humanities elective
(3) Elective	
(18)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **BCHM 30700** (Biochemistry)
(3) **AGRY 25500** (Soil Science)	(1) **BCHM 30900** (Biochemistry Laboratory)
(4) **CHM 25700** (Organic Chemistry)	(3) **BTNY 30100** (Introductory Plant Pathology)
(1) **CHM 25701** (Organic Chemistry Laboratory)	(3) **PHYS 21400** (The Nature of Physics)
(3) Statistics elective	(3) Career elective
(3) Elective	(3) Social science elective
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(2) **ENTM 20600** (General Entomology)
(1) **AGRY 32100** (Genetics Laboratory)	(1) **ENTM 20700** (General Entomology Laboratory)
(4) **HORT 30100** (Plant Physiology)	(3) **BTNY 35000** (Biotechnology in Agriculture)
(3) Career elective	(3) **HORT 49100** (Special Assignments in Horticulture)
(2) Science elective (20000+ level)	(3) Humanities elective
(3) Elective	(3) Science elective (20000+ level)
(16)	(15)

** The following substitutions are recommended for students anticipating graduate studies: BCHM 56100 and 56200 for BCHM 30700 and 30900; CHM 11500 and 11600 for CHM 11100 and 11200; CHM 25500, 25501, 25600, and 25601 for CHM 25700 and 25701; PHYS 22000 and 22100 for PHYS 21400. Mathematics competence through MA 16200 also is recommended.*

† A minimum of eight weeks (320 hours) of employment is required in a technical or research-oriented facility before graduation. Verification needs to be on file in the Department of Horticulture and Landscape Architecture Student Services Office.

Senior Year

Seventh Semester	*Eighth Semester*
(1) **HORT 49200** (Horticultural Science Capstone Seminar)	(1) **HORT 51300** (Nutrition of Horticulture Crops)
(3) **HORT 55100** (Cellular and Molecular Plant Physiology)	(1) **HORT 54100** (Postharvest Technology of Fruit and Vegetables)
(3) Career elective	(9) Career electives
(3) Horticultural production elective	(3) Social science or humanities elective (30000+ level)
(3) Social science or humanities elective	(2) Elective
(3) English or communication elective (20000+ level)	
(16)	(16)

Interdisciplinary Agriculture

The interdisciplinary agriculture curriculum coordinated by the Office of Academic Programs is for students who have professional goals in the food, agricultural, and natural resource system requiring preparation that is not available through other College of Agriculture baccalaureate degree programs. While this program does have significant flexibility, students enrolled in interdisciplinary agriculture must identify a professional goal and develop a specific plan of study to prepare for it.

Credit Hours Required for Graduation: 130*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 12300** (Introduction to College of Agriculture Interdisciplinary Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **MA 22000** (Introduction to Calculus)
(3) **CHM 11100** (General Chemistry)	(3) Agricultural elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) Agricultural elective	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **STAT 30100** (Elementary Statistical Methods)
(3) **COM 11400** (Fundamentals of Speech Communication)	(6) Agricultural electives
(3) Agricultural elective	(3) Humanities elective
(3) Computer applications elective	(4) Mathematics or sciences electives
(3) Mathematics or sciences elective	
(3) Social science elective	
(18)	(16)

* *Completion of an academic minor is required as partial fulfillment of the Interdisciplinary Agriculture baccalaureate degree requirements.*

Junior Year

Fifth Semester	*Sixth Semester*
(3) Agricultural elective (30000+ level)	(6) Agricultural electives (30000+ level)
(3) Humanities elective	(3) Mathematics or sciences elective
(7) Mathematics or sciences electives	(3) Social science or humanities elective
(3) Written or oral communication elective	(5) Electives
(16)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(6) Agricultural electives (30000+ level)	(6) Agricultural electives
(3) Social science or humanities elective	(3) Social science or humanities elective (30000+ level)
(3) Written or oral communication elective	(3) Written or oral communication elective
(5) Electives	(3) Elective
(17)	(15)

International Agronomy

International agronomy is designed for students interested in the agronomic aspects of international agricultural development. The program prepares students for opportunities in world agriculture in two areas: (1) social action agencies, such as agricultural missions, International Voluntary Service, Peace Corps, other U.S. government programs, and private volunteer organizations; and (2) professional careers in international agricultural development, such as technical specialists with international programs of universities, international development centers, private foundations, or U.S. and international government assistance agencies. Students preparing for these careers need advanced education and should have a strong science background. Students select electives that develop an understanding of foreign cultures, languages, customs, politics, and development problems as well as international relations, world trade, world religions, and the United States' role in international agricultural development.

Credit Hours Required for Graduation: 131
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(1) **AGRY 35000** (Global Awareness)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(4) **BIOL 11100** (Fundamentals of Biology II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(4) **ENGL 10600** (First-Year Composition)
(3) **MA 22300** (Introductory Analysis I)	(3) **MA 22400** (Introductory Analysis II)
(3) Directed option elective	(3) Directed option elective
(1) Elective	
(15)	(18)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **AGRY 36500** (Soil Fertility)
(3) **AGRY 25500** (Soil Science)	(3) **COM 11400** (Fundamentals of Speech Communication)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **STAT 30100** (Elementary Statistical Methods)
(4) **CHM 25700** (Organic Chemistry)	(3) Foreign language elective
(3) Foreign language elective	(5) Mathematics or sciences electives
(3) Elective	
(17)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) **AGEC 34000** (International Economic Development)
(3) **PHYS 21400** (The Nature of Physics)	(3) **AGRY 28500** (World Crop Adaptation and Distribution)
(4) Directed option electives	(3) **AGRY 33500** (Weather and Climate)
(3) Foreign language elective	(2) Conversation language elective
(3) Social science elective	(2) Mathematics or sciences elective
	(3) Written or oral communication elective
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 45000** (International Agricultural Trade)	(4) Directed option electives
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) Social science or humanities elective
(3) **AGRY 57000** (Agronomy in International Development)	(9) Electives
(3) **AGRY 59800** (Special Problems)	
(3) Social science or humanities elective (30000+ level)	
(3) Elective	
(16)	(16)

Landscape Architecture

Landscape architecture is education in the design and technology of the human-made landscape. The curriculum offered by the Department of Horticulture and Landscape Architecture focuses on professional preparation for a career in landscape architecture in private practice; public agencies; or related land-use, design-oriented areas. The plan of study for landscape architecture consists of one year of prelandscape architecture and four years of professional landscape architecture that includes one year of cooperative work experience.

Credit Hours Required for Graduation: 132*†
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(3) **AD 10500** (Design I)	(4) **ENGL 10600** (First-Year Composition)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **LA 21600** (Landscape Architectural Design I)
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(1) **LA 25000** (Architectural Design)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Art and design elective
(3) **LA 10100** (Survey of Landscape Architecture)	(4) Biological sciences elective
(3) **LA 11600** (Graphic Communication for Students of Landscape Architecture and Design)	(3) Statistics or calculus elective‡
(4) Biological sciences elective	
(17)	(18)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **ASM 21500** (Surveying)
(4) **HORT 21700** (Woody Landscape Plants)	(3) **LA 11700** (Computer Technology in Design)
(3) **LA 22700** (Planting Design I)	(3) **LA 16600** (History and Theory of Landscape Architecture)
(4) **LA 24600** (Site Systems I)	(4) **LA 22600** (Landscape Architectural Design II)
(3) Elective	(3) Humanities elective
(17)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **HORT 31700** (Landscape Contracting and Management)	(5) **LA 32600** (Landscape Architectural Design IV)
(5) **LA 31600** (Landscape Architectural Design III)	(4) **LA 35600** (Site Systems III)
(3) **LA 32500** (Planting Design II)	(3) Mathematics or sciences elective
(3) **LA 34600** (Site Systems II)	(3) Social science or humanities elective
(3) Elective	
(17)	(15)

Internship Period (Cooperative Employment)

(0) **LA 39000** (Professional Cooperative Programs in Landscape Architecture)§

** Progression policy: Landscape architecture design and construction courses are taken in a sequence to foster the development of professional skills. A student may repeat a course designated LA only once.*

† Students who are admitted into the landscape architecture professional program will be required to be equipped with a personal computer. Computer specifications and required software will be published annually. The student will be responsible for the security of the computer.

‡ Students who do not take calculus must establish mathematical competency by passing the MA 15900 advanced credit examination or by enrolling in, and satisfactorily completing, MA 15300 and 15400, or MA 15900. Credits in one of these courses may be used as an elective in the plan of study subject to the approval by the student's academic advisor.

§ Students must register for two semesters of LA 39000 or equivalent. A single uninterrupted period of 40 weeks of employment as an intern in an approved professional design office, either private or governmental, is required prior to graduation. This period is intended to be completed between the sixth and seventh semesters but may be taken between the fifth and sixth semesters upon written consent of the program chair.

Senior Year

Seventh Semester	*Eighth Semester*
(5) **LA 41600** (Landscape Architectural Design V)	(5) **LA 42600** (Capstone Course in Landscape Architecture)
(2) **LA 47600** (Professional Practice of Landscape Architecture)	(3) Mathematics or sciences elective
(3) Mathematics or sciences elective	(3) Social science elective
(3) Social science or humanities elective (30000+ level)	(5) Electives
(3) Written or oral communication elective	
(16)	(16)

Landscape Horticulture and Design

Students selecting landscape horticulture and design are trained for careers in design, construction, installation, and maintenance of landscapes. Graduates of this Department of Horticulture and Landscape Architecture program may operate a landscape design/build, construction, or maintenance firm; work as a grounds manager; do small-scale landscape design; or be involved in the development, distribution, or sales of equipment, supplies, or plant materials in the landscape industry.

Credit Hours Required for Graduation: 130*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BTNY 21000** (Introduction to Plant Science)	(1) **HORT 11000** (Survey of Horticulture)
(3) **CHM 11100** (General Chemistry)	(3) **HORT 20100** (Plant Propagation)
(4) **ENGL 10600** (First-Year Composition)	(3) Calculus elective
(3) **HORT 10100** (Fundamentals of Horticulture)	(3) Humanities elective
(3) Elective	
(18)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **AGEC 33000** (Management Methods for Agricultural Business)
(4) **CHM 25700** (Organic Chemistry)	(3) **AGRY 25500** (Soil Science)
(4) **HORT 21700** (Woody Landscape Plants)	(3) **ASM 21500** (Surveying)
(3) **LA 11600** (Graphic Communication for Students of Landscape Architecture and Design)	(1) **HORT 22200** (Dynascape© Applications in Horticulture)
(3) Statistics elective	(1) **HORT 22300** (Autocad© Applications in Horticulture)
	(1) **HORT 22400** (Photoshop© Applications in Horticulture)
	(3) Social science elective
(17)	(15)

** A minimum of eight weeks (320 hours) of employment is required in a horticultural enterprise related to the student's chosen field before graduation.*

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(3) **HORT 21800** (Herbaceous Landscape Plants)	(3) **AGRY 21000** (Fundamentals of Turfgrass Culture)
(4) **HORT 30100** (Plant Physiology)	(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **HORT 31500** (Landscape Design)	(3) **HORT 31600** (Landscape Construction)
(3) Career elective	(3) Humanities elective
(16)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **ENTM 44600** (Integrated Plant Health Management for Ornamental Plants)	(3) **BTNY 30400** (Introductory Weed Science)
(3) **HORT 31700** (Landscape Contracting and Management)	(3) **HORT 42500** (Landscape Horticulture Capstone Project)
(3) **HORT 42000** (Ornamental Plant Production)	(1) **HORT 51300** (Nutrition of Horticulture Crops)
(4) **HORT 43500** (Principles of Marketing and Management for Horticultural Businesses)	(3) English or communication elective (20000+ level)
(3) Social science or humanities elective (30000+ level)	(3) Social science or humanities elective
	(3) Supervision/personnel elective
	(1) Elective
(16)	(17)

Natural Resources and Environmental Science

Natural resources and environmental science develops individuals qualified to deal with environmental problems. This interdisciplinary curriculum provides flexibility to develop individual study plans. The curriculum emphasizes the use of resources such as soil, water, air, and their natural and artificial components. Graduates of this program will find opportunities as technical, scientific, or support personnel with local, state, or federal agencies; with agriculture, industry, wildlands, or conservation organizations; or in the fields of environmental consulting, journalism, and education.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12200** (Introduction to Natural Resources and Environmental Science Academic Programs)	(4) **ENGL 10600** (First-Year Composition)
(3) **CHM 11100** (General Chemistry)	(3) **MA 22400** (Introductory Analysis II)
(3) **COM 11400** (Fundamentals of Speech Communication)	(4) Biological sciences elective
(3) **MA 22300** (Introductory Analysis I)	(3) Elective
(4) Biological sciences elective	
(3) Elective	
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(4) **CHM 25700** (Organic Chemistry)	(3) **AGRY 33500** (Weather and Climate) **or** (3) **NRES 23000** (Survey of Meteorology)
(3) **NRES 25500** (Soil Science)	(2) **BIOL 28600** (Introduction to Ecology and Evolution) **or** (2) **ENTM 32000** (Biodiversity)
(3) **NRES 29000** (Introduction to Environmental Science)	(1) **NRES 20000** (Introduction to Environmental Careers)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **NRES 28000** (Hazardous Waste Handling)
(3) Economics elective	(3) **POL 22300** (Introduction to Environmental Policy)
	(3) Social science elective
	(3) Elective
(16)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(6) Biochemistry, biology, chemistry, mathematics, physics, or statistics electives	(3) **AGEC 40600** (Natural Resource and Environmental Economics)
(8) Concentration selectives	(3) Concentration selective
(3) Humanities elective	(3) Environmental biology or plant ecology elective
	(3) Humanities elective
	(3) International understanding elective
(17)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(3) Biochemistry, biology, chemistry, mathematics, physics, or statistics elective	(6) Concentration selectives
(3) Concentration selective	(6) Directed electives
(3) Social science elective	(3) Social science or humanities elective (30000+ level)
(3) Written or oral communication elective	
(5) Electives	
(17)	(15)

Natural Resources Planning and Decision Making

Students in this Department of Forestry and Natural Resources major will learn the basics of natural resource science and the complexity of working with multiple stakeholders. Students will learn skills such as geographic information systems (GIS) and spatial analysis, planning, policy analysis, economics, multiple-objective decision making, and working with the public. They will critically engage in efforts to solve many of the complex resource development issues currently facing the United States and the world. Students will be strongly encouraged to participate in an approved internship the summer after their junior year.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11900** (Introduction to Forestry and Natural Resources Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **AGRY 27000** (Forest Soils)
(3) **FNR 22500** (Dendrology)	(2) **BIOL 28600** (Introduction to Ecology and Evolution)
(3) **FNR 23000** (The World's Forests and Society)	(3) **FNR 21000** (Natural Resource Information Management)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals)	(3) **FNR 25100** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **POL 22300** (Introduction to Environmental Policy)
	(3) Humanities elective
(15)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **FNR 33100** (Forest Ecosystems)	(3) **AGRY 33700** (Environmental Hydrology)
(3) **FNR 35700** (Fundamental Remote Sensing)	(3) **FNR 37500** (Human Dimensions of Natural Resource Management)
(3) **FNR 35900** (Spatial Ecology and GIS)	(3) **FNR 41200** (Natural Resources Decision Making)
(3) **FNR 36500** (Natural Resources Issues, Policy, and Administration)	(3) Social science or humanities elective
(3) **FNR 40600** (Natural Resource and Environmental Economics)	(4) Elective
(3) Written or oral communication elective	
(18)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(1) **FNR 47000** (Fundamentals of Planning)	(3) **FNR 40800** (Natural Resources Planning)
(3) **FNR 54300** (Conservation Biology I)	(6) Natural resources electives
(2) **FNR 57200** (Community Involvement in Natural Resource Management)	(3) Social science or humanities elective
(3) Ethics elective	(3) Elective
(3) Natural resources elective	
(3) Social science or humanities elective	
(3) Elective	
(18)	(15)

Plant Biology

Students who appreciate the diversity and beauty of plant life, are concerned about ecology, and are interested in the mechanisms behind plant growth and development will find the plant biology option challenging and rewarding. This is a rigorous curriculum, providing students with a strong science background and exposure to the full scope of the plant world — from the smallest components of a cell to a whole plant. Plant biology majors have the opportunity to choose and perform individual research on a project under the guidance of a departmental faculty scientist. This Department of Botany and Plant Pathology program is designed to prepare students for careers in plant biotechnology, genetics, molecular biology, physiology, pathology, and weed science.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **CHM 11600** (General Chemistry)
(0.5) **AGR 11600** (Introduction to Botany and Plant Pathology Academic Programs)	(4) **ENGL 10600** (First-Year Composition)
(4) **BTNY 21000** (Introduction to Plant Science)	(3) **MA 22400** (Introductory Analysis II)
(4) **CHM 11500** (General Chemistry)	(3) Directed elective
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Elective
(3) **MA 22300** (Introductory Analysis I)	
(15)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **AGRY 32000** (Genetics)
(3) **BTNY 30500** (Fundamentals of Plant Classification)	(1) **AGRY 32100** (Genetics Laboratory)
(3) **CHM 25500** (Organic Chemistry)	(3) **BTNY 20700** (The Microbial World: Food, Agriculture, and History)
(1) **CHM 25501** (Organic Chemistry Laboratory)	(3) **CHM 25600** (Organic Chemistry)
(3) Social science or humanities elective	(1) **CHM 25601** (Organic Chemistry Laboratory)
(3) Elective	(3) Social science elective
	(3) Written or oral communication elective
(16)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **BCHM 30700** (Biochemistry)	(3) **BTNY 30200** (Plant Ecology)
(1) **BCHM 30900** (Biochemistry Laboratory)	(4) **PHYS 22100** (General Physics)
(4) **BTNY 31600** (Plant Anatomy)	(3) **STAT 50300** (Statistical Methods for Biology)
(4) **HORT 30100** (Plant Physiology)	(3) Directed elective
(4) **PHYS 22000** (General Physics)	(3) Humanities elective
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **BTNY 49800** (Research in Plant Science)	(3) Directed elective
(6) Directed electives	(3) Humanities elective
(3) Social science or humanities elective (30000+ level)	(3) International understanding elective
(6) Electives	(6) Electives
(18)	(15)

Plant Genetics and Plant Breeding

The plant genetics and plant breeding option in the Department of Agronomy offers exciting opportunities in agricultural biotechnology, genetic engineering, and research in genetic mechanisms that control crop growth and development. Students specializing in plant breeding are prepared for careers involving development of improved varieties and their adaptation to crop production systems. Emphasis is placed on the fundamentals of genetics and plant breeding as well as on the latest developments in genetic engineering, environmentally sound crop production practices, development of varieties for the agriculture of developing countries, and the strategies for developing plant lines adapted to environmental stresses.

Credit Hours Required for Graduation: 132*
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II) **or** (4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(4) **CHM 11600** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I) **or** (4) **BTNY 21000** (Introduction to Plant Science)	(3) **MA 22400** (Introductory Calculus II) **or** (5) **MA 16200** (Plane Analytic Geometry and Calculus II)‡
(4) **CHM 11500** (General Chemistry)	(2) Directed option elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22300** (Introductory Calculus I) **or** (5) **MA 16100** (Plane Analytic Geometry and Calculus I)†	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGRY 32000** (Genetics)	(4) **CHM 25700** (Organic Chemistry)
(1) **AGRY 32100** (Genetics Laboratory)	(1) **CHM 25701** (Organic Chemistry Laboratory)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **PHYS 15200** (Mechanics) **or** (4) **PHYS 22000** (General Physics)	(4) **PHYS 22000** (General Physics) **or** (3) **PHYS 24100** (Electricity and Optics)§
(3) Directed option elective	(3) Core economics elective
(3) Social science elective	(3) Directed option elective
(15)	(18)

** A professional internship in plant genetics or plant breeding is required.*
† Reduce elective requirements by two credits if MA 16100 is selected.
‡ Reduce elective requirements by two credits if MA 16200 is selected.
§ Increase elective requirements by one credit if PHYS 24100 is selected.

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 25500** (Soil Science)	(4) **BIOL 22100** (Introduction to Microbiology)
(3) **BCHM 30700** (Biochemistry)	(4) Directed option elective
(1) **BCHM 30900** (Biochemistry Laboratory)	(6) Humanities electives
(3) **BIOL 23100** (Biology III: Cell Structure and Function)	(3) Written or oral communication elective
(3) Social science or humanities elective	
(3) Elective	
(16)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGRY 48000** (Plant Genetics)	(3) **AGRY 52500** (Crop Physiology and Ecology) **or** (4) **HORT 30100** (Plant Physiology)*
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) Directed elective
(3) **AGRY 52000** (Principles and Methods of Plant Breeding)	(3) Social science or humanities elective (30000+ level)
(3) **BIOL 41500** (Introduction to Molecular Biology) **or** (3) **BTNY 35000** (Biotechnology in Agriculture)	(9) Electives
(3) **STAT 50300** (Statistical Methods for Biology)	
(3) International understanding elective	
(16)	(18)

Public Horticulture

Public horticulture is a professional program leading to employment in botanical gardens, arboretums, and other horticultural establishments in the public sector, as curators of plant collections, educators, plant propagators, illustrators, and writers. The Department of Horticulture and Landscape Architecture, which offers this curriculum, stresses practical training through internships in public gardens.

Credit Hours Required for Graduation: 130†
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) **CHM 11200** (General Chemistry)
(0.5) **AGR 12000** (Introduction to Horticulture and Landscape Architecture Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BTNY 21000** (Introduction to Plant Science)	(1) **HORT 11000** (Survey of Horticulture)
(3) **CHM 11100** (General Chemistry)	(3) **HORT 20100** (Plant Propagation)
(4) **ENGL 10600** (First-Year Composition)	(3) Calculus elective
(3) **HORT 10100** (Fundamentals of Horticulture)	(3) Humanities elective
(3) Elective	
(18)	(16)

** Reduce elective requirements by one credit if HORT 30100 is selected.*

† Internships or practica totaling at least six months, in an approved establishment, are required before graduation. Verification needs to be on file in the Department of Horticulture and Landscape Architecture Student Services Office.

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) **BCHM 30700** (Biochemistry)
(3) **AGRY 25500** (Soil Science)	(1) **BCHM 30900** (Biochemistry Laboratory)
(4) **CHM 25700** (Organic Chemistry)	(3) **BTNY 30100** (Introductory Plant Pathology)
(4) **HORT 21700** (Woody Landscape Plants)	(1) **HORT 22200** (Dynascape© Applications in Horticulture)
(3) Statistics elective	(1) **HORT 22400** (Photoshop© Applications in Horticulture)
	(3) **LA 16600** (History and Theory of Landscape Architecture)
	(3) Social science or humanities elective
(17)	(15)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) **BTNY 30200** (Plant Ecology)
(3) **BTNY 30500** (Fundamentals of Plant Classification)	(3) **HIST 30200** (History of Horticulture)
(3) **HORT 21800** (Herbaceous Landscape Plants)	(1) **HORT 44100** (Sustainability in the Managed Landscape)
(4) **HORT 30100** (Plant Physiology)	(3) Career elective
(3) **LA 11600** (Graphic Communication for Students of Landscape Architecture and Design)	(3) Written or oral communication elective (20000+ level)
	(3) Elective
(16)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **ENTM 44600** (Integrated Plant Health Management for Ornamental Plants)	(1) **HORT 44000** (Public Garden Management)
(1) **HORT 31000** (Plant Design Basics)	(3) Additional communication elective
(3) **HORT 31700** (Landscape Contracting and Management)	(3) Career elective
(3) **HORT 42000** (Ornamental Plant Production)	(3) Social science elective
(3) Career elective	(3) Supervision/personnel elective
(3) Humanities elective	(3) Elective
(16)	(16)

Quantitative Agricultural Economics

Graduate schools, government agencies, and consulting firms seek individuals with a strong background in quantitative methods, advanced courses in applied economics, and a strong background in economic theory. Graduates of this Department of Agricultural Economics undergraduate program have opportunities to enter graduate school in agricultural economics, law school, and other areas of more advanced educational training. They also have opportunities to enter positions in the field of finance, marketing, business management, and farming. They are highly trained to analyze management problems and possess the technical skills in mathematics, computer science, statistics, and economic theory to gain an edge in any market.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **MA 22400** (Introductory Analysis II)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **CHM 11200** (General Chemistry)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **COM 11400** (Fundamentals of Speech Communication)
(1) **AGEC 37500** (The Process of Economic Research)	(3) **ECON 34000** (Intermediate Microeconomic Theory)
(3) **CHM 11100** (General Chemistry)	(3) Humanities elective
(3) **STAT 30100** (Elementary Statistical Methods)	(2) Research elective
(3) Social science elective	(3) Elective
(3) Elective	
(17)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or AGEC 55200** (Introduction to Mathematical Programming)	(3) **AGEC 41000** (Agricultural Policy)
(3) Agricultural economics elective	(3) **AGEC 45100** (Applied Econometrics) **or** (3) **STAT 50100** (Experimental Statistics I)
(3) Economics elective	(3) Agricultural economics elective
(2) Research elective	(1) Research elective
(3) Social science or humanities elective (30000+ level)	(3) Written or oral communication elective
(3) Elective	(3) Elective
(17)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 30500** (Agricultural Prices) **or** (3) **AGEC 50600** (Agricultural Marketing and Price Analysis)	(3) Economics elective
(3) **AGEC 45000** (International Agricultural Trade)	(3) Social science or humanities elective
(3) Social science, humanities, or international understanding elective	(8) Electives
(3) Written or oral communication elective	
(5) Electives	
(17)	(14)

Sales and Marketing

The sales and marketing option prepares students for careers with nonfarm agribusinesses. A wide spectrum of farm-supply industries, service firms, agricultural marketing organizations, and pharmaceutical and food manufacturing companies are marketing-oriented and depend extensively on agricultural graduates who are well-trained in marketing tools and concepts. This Department of Agricultural Economics curriculum provides the basis for entry into agrimarketing, leading to a professional career in agri-sales or marketing management. Not only is emphasis given to sales, marketing, and management, but also students are asked to develop a specialty area in preparation for entry into an agricultural business-related industry of their choice.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(1) **AGEC 20200** (Spreadsheet Use in Agricultural Business)	(3) **AGEC 21700** (Economics)
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **COM 11400** (Fundamentals of Speech Communication)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) Biological sciences elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Humanities elective
(4) **ENGL 10600** (First-Year Composition)	(3) Elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(4) Biological sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 22000** (Marketing Farm Products)	(3) **AGEC 33000** (Management Methods for Agricultural Business) **or** (3) **ENTR 20000** (Introduction to Entrepreneurship and Innovation)
(1) **AGEC 29800** (Sophomore Seminar)	(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(3) **CHM 11100** (General Chemistry)	(3) **CHM 11200** (General Chemistry)
(3) **STAT 30100** (Elementary Statistical Methods)	(3) **MGMT 20000** (Introductory Accounting)
(3) Social science, humanities, or international understanding elective	(3) Social science elective
(3) Written or oral communication elective	(15)
(16)	

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making) **or** mathematics/sciences elective*	(3) **AGEC 42600** (Marketing Management of Agricultural Business)
(4) **AGEC 42400** (Financial Management of Agricultural Business)	(3) **AGEC 45100** (Applied Econometrics) **or** mathematics/sciences elective*
(3) Humanities elective	(3) **MGMT 45500** (Legal Background for Business I)
(3) Specialty elective	(3) Economics elective
(3) Written or oral communication elective	(3) Written or oral communication elective
(2) Elective	(3) Elective
(18)	(18)

** Student must complete quantitative techniques for firm decision making or applied econometrics.*

Senior Year

Seventh Semester	*Eighth Semester*
(4) **AGEC 43100** (Advanced Agri-Sales and Marketing)	(3) **AGEC 43000** (Agricultural and Food Business Strategy)
(3) Economics elective	(2) Mathematics or sciences elective
(3) Social science or humanities elective (30000+ level)	(3) Social science or humanities elective
(3) Specialty elective	(3) Specialty elective
(3) Elective	(6) Electives
(16)	(17)

Soil and Crop Management

This Department of Agronomy option prepares students for careers in technical and management-oriented positions. Students select courses in areas such as soils and plant nutrition; cropping systems; weed, insect, and disease management; and environmental management to construct plans of study aligned with their interests. Graduates accept positions in soil survey and conservation, banking, land use, fertilizer and agricultural chemical or seed industries, environmental consulting and planning, natural resource assessment, agricultural extension, and farm production and management.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(3) **CHM 11200** (General Chemistry)
(3) **AGRY 10500** (Crop Production)	(4) **ENGL 10600** (First-Year Composition)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) Core economics elective
(3) **CHM 11100** (General Chemistry)	(3) Social science elective
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(3) Elective	
(17)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGRY 25500** (Soil Science)	(3) **AGRY 36500** (Soil Fertility)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **EAS 11100** (Physical Geology)
(4) **CHM 25700** (Organic Chemistry)	(3) **STAT 30100** (Elementary Statistical Methods)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Additional science elective
(3) Agronomy elective	(3) Humanities elective
(3) Elective	(3) Elective
(17)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) **AGRY 33500** (Weather and Climate)
(1) **AGRY 32100** (Genetics Laboratory)	(3) Additional science elective
(3) **BTNY 30100** (Introductory Plant Pathology)	(3) Agricultural economics, economics, or management elective
(3) Additional science elective	(3) Written or oral communication elective
(3) Agronomy elective	(3) Elective
(3) Humanities elective	
(16)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) **BTNY 30400** (Introductory Weed Science)
(3) Agronomy elective	(2) **ENTM 20600** (General Entomology)
(3) Geographic information systems, global positioning systems, or remote sensing elective	(1) **ENTM 20700** (General Entomology Laboratory)
(3) International understanding elective	(3) Agronomy elective
(3) Social science or humanities elective (30000+ level)	(3) Social science or humanities elective
(3) Written or oral communication elective	(2) Elective
(16)	(14)

Soil and Crop Science

This Department of Agronomy option provides a solid background in science while preparing students to apply this knowledge in many technical phases of plant, soil, and environmental management. Students are especially qualified for graduate study in soil fertility and plant nutrition, soil chemistry, soil physics, soil microbiology, environmental science, soil mineralogy and genesis, crop physiology and ecology, biotechnology and plant genetics, and plant breeding. Students can emphasize either plant science or soil science. Course flexibility permits designing a specific program for each student. The job opportunities are numerous and encompass a broad range in science, business, and education.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(4) **CHM 11600** (General Chemistry)
(3) **AGRY 10500** (Crop Production)	(3) **MA 22400** (Introductory Analysis II)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) Agronomy elective
(4) **CHM 11500** (General Chemistry)	(3) Core economics elective
(4) **ENGL 10600** (First-Year Composition)	
(3) **MA 22300** (Introductory Analysis I)	
(19)	(17)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGRY 25500** (Soil Science)	(3) **AGRY 36500** (Soil Fertility)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **STAT 30100** (Elementary Statistical Methods)
(4) **CHM 25700** (Organic Chemistry)	(3) Additional science elective
(1) **CHM 25701** (Organic Chemistry Laboratory)	(3) Agronomy elective
(3) **COM 11400** (Fundamentals of Speech Communication)	(6) Humanities electives
(3) Elective	
(15)	(18)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGRY 32000** (Genetics)	(3) **AGRY 33500** (Weather and Climate)
(1) **AGRY 32100** (Genetics Laboratory)	(3) **BTNY 30200** (Plant Ecology)
(4) **PHYS 22000** (General Physics)	(4) **PHYS 22100** (General Physics)
(3) Agronomy elective	(3) Written or oral communication elective
(3) Social science or humanities elective	(3) Elective
(3) Social science or humanities elective (30000+ level)	
(17)	(16)

Senior Year

Seventh Semester	*Eighth Semester*
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) **AGRY 52500** (Crop Physiology and Ecology)
(4) **BIOL 22100** (Introduction to Microbiology) **or** (3) **BCHM 30700** (Biochemistry) **and** (1) **BCHM 30900** (Biochemistry Laboratory)	(3) Agricultural economics, economics, or management elective
(3) Additional science elective	(3) Agricultural elective
(3) International understanding elective	(3) Crop protection elective
(3) Social science elective	(1) Elective
(3) Elective	
(17)	(13)

Turf Science

Students enrolled in this Department of Agronomy option study soil and plant science, with emphasis on the art and science of turfgrass management. Upon completion of the turf science program, a student is prepared to manage and provide technical information for golf courses, home lawns, athletic fields, commercial lawns, parks, recreation areas, and sod farms. The use of current recreational facilities and the need for new recreational facilities is very high, thus creating a demand for professional turfgrass managers with a college education in turfgrass science.

Credit Hours Required for Graduation: 132
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BIOL 11100** (Fundamentals of Biology II) **or** (4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11300** (Introduction to Agronomy Academic Programs)	(3) **CHM 11200** (General Chemistry)
(1) **AGRY 11000** (Survey of Turfgrass Culture)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **BIOL 11000** (Fundamentals of Biology I) **or** (4) **BTNY 21000** (Introduction to Plant Science)	(3) Core economics elective
(3) **CHM 11100** (General Chemistry)	(3) Social science elective
(4) **ENGL 10600** (First-Year Composition)	
(3) **MA 22000** (Introduction to Calculus) **or** (3) **MA 22300** (Introductory Analysis I)	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)	(3) **AGRY 21000** (Fundamentals of Turfgrass Culture)
(3) **AGRY 25500** (Soil Science)	(1) **AGRY 21100** (Fundamentals of Turfgrass Culture Laboratory)
(1) **AGRY 39800** (Agronomy Seminar)	(3) **AGRY 32000** (Genetics) or additional mathematics and sciences elective
(3) Humanities elective	(3) **BTNY 30400** (Introductory Weed Science)
(3) Suggested turf elective	(4) **CHM 25700** (Organic Chemistry)
(3) Elective	(3) Humanities elective
(16)	(17)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 33000** (Management Methods for Agricultural Business)	(3) **AGRY 36500** (Soil Fertility)
(3) **AGRY 51000** (Turfgrass Science)	(3) **PHYS 21400** (The Nature of Physics) **or** (4) **PHYS 22000** (General Physics)*
(3) **BTNY 30100** (Introductory Plant Pathology)	(6) Business, management, or supervision electives
(3) **ENTM 44600** (Integrated Plant Health Management for Ornamental Plants) **or** (2) **ENTM 20600** (General Entomology) **and** (1) **ENTM 20700** (General Entomology Laboratory)	(3) International understanding elective
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Elective
(3) Business management or supervision elective	
(18)	(18)

** Reduce elective requirements by one credit if PHYS 22000 is selected.*

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGEC 33100** (Principles of Selling in Agricultural Business)	(3) **AGEC 42600** (Marketing Management of Agricultural Business) **or** (4) **HORT 43500** (Principles of Marketing and Management for Horticultural Businesses)*
(1) **AGRY 49800** (Agronomy Senior Seminar)	(3) **AGRY 52500** (Crop Physiology and Ecology)
(3) **AGRY 51200** (Integrated Turfgrass Systems)	(3) **BTNY 44300** (Arthopods and Diseases of Turfgrass)
(3) Agronomy soils directed elective	(3) Social science or humanities elective
(3) Written or oral communication elective	(3) Social science or humanities elective (30000+ level)
(3) Elective	
(16)	(15)

Urban and Industrial Pest Management

The urban and industrial pest management option blends science and business for students interested in urban pest management. The Department of Entomology plan of study is flexible enough to prepare you for graduate school or for employment in the urban and industrial pest management industry; food processing and chemical industries; federal, state, or local public health agencies; or lawn and garden companies.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11700** (Introduction to Entomology Academic Programs)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **ENGL 10600** (First-Year Composition)	(3) **ENTM 21000** (Introduction to Insect Behavior)
(2) **ENTM 20600** (General Entomology)	(3) Chemistry elective
(1) **ENTM 20700** (General Entomology Laboratory)	(3) Statistics elective
(4) Biology core elective	
(3) Calculus elective	
(3) Chemistry elective	
(18)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(4) **BIOL 22100** (Introduction to Microbiology)	(3) **BCHM 30700** (Biochemistry)
(4) **ENTM 33500** (Introduction to Insect Identification)	(1) **BCHM 30900** (Biochemistry Laboratory)
(1) **FS 36100** (Food Plant Sanitation)	(3) **BTNY 30100** (Introductory Plant Pathology)
(3) Economics elective	(3) **ENTM 31100** (Insect Ecology)
(4) Organic chemistry elective	(3) Written or oral communication elective
	(3) Elective
(16)	(16)

** Reduce elective requirements by one credit if HORT 43500 is selected.*

Summer Session

(0) **ENTM 39000** (Professional Experience Programs in Entomology)

Junior Year

Fifth Semester	*Sixth Semester*
(2) **BCM 10000** (Introduction to Construction)	(3) **ENTM 52600** (Urban and Industrial Vertebrate Management)
(1) **ENTM 49200** (Capstone Experience in Entomology I)	(3) **HTM 19100** (Sanitation and Health in Foodservice, Lodging, and Tourism)
(3) **ENTM 51500** (Insecticides)	(3) **IT 35100** (Advanced Industrial Safety and Health Management)
(3) **ENTM 52100** (Urban and Industrial Insect Management)	(3) Directed communication elective
(3) Business elective	(3) Social science or humanities elective
(3) Social science or humanities elective	(30000+ level)
(3) Elective	
(18)	(15)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **AGRY 32000** (Genetics)	(1) **ENTM 49300** (Capstone Experience in Entomology II)
(3) **ENTM 44600** (Integrated Plant Health Management for Ornamental Plants)	(6) Business electives
(3) Humanities elective	(6) Directed communication electives
(3) Social science elective	(3) Humanities elective
(3) Elective	
(15)	(16)

Wildlife

The wildlife program prepares students for professional careers in wildlife research, management, and education. Students apply biological, ecological, economic, and social knowledge to develop and administer wildlife management plans. Graduates receive a bachelor of science degree. This Department of Forestry and Natural Resources curriculum has common core requirements with the fisheries and aquatic sciences, forestry, and natural resources curricula. Emphasis is on the sustainable management of natural resource systems — focusing on forests, watersheds, and associated flora and fauna to meet the needs of society.

Credit Hours Required for Graduation: 134
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11900** (Introduction to Forestry and Natural Resources Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(3) **MA 22300** (Introductory Analysis I)	
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **AGRY 27000** (Forest Soils)
(3) **FNR 22500** (Dendrology)	(2) **BIOL 28600** (Introduction to Ecology and Evolution)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals)	(3) **FNR 21000** (Natural Resource Information Management)
(1) **FNR 24200** (Laboratory in Ecology and Systematics of Fishes and Mammals)	(3) **FNR 25100** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
(3) **STAT 30100** (Elementary Statistical Methods)	(1) **FNR 25200** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
(3) Social science or humanities elective	(3) **FNR 34800** (Wildlife Investigational Techniques)
(16)	(15)

Summer Session

(2) **FNR 37000** (Natural Resources Practicum)
(4) **FNR 37300** (Wildlife Practicum)
(6)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **FNR 33100** (Forest Ecosystems)	(3) **FNR 34100** (Wildlife Habitat Management)
(3) **FNR 36500** (Natural Resources Issues, Policy, and Administration)	(3) **FNR 37500** (Human Dimensions of Natural Resource Management)
(3) **FNR 40600** (Natural Resource and Environmental Economics)	(3) Social science or humanities elective
(2) Botany elective	(3) Wildlife elective
(2) Ecotoxicology or wildlife disease elective	(6) Electives
(3) Written or oral communication elective	
(16)	(18)

Senior Year

Seventh Semester	*Eighth Semester*
(4) **FNR 44700** (Vertebrate Population Dynamics)	(3) **FNR 30500** (Conservation Genetics)
(1) **FNR 47000** (Fundamentals of Planning)	(3) **FNR 40800** (Natural Resources Planning)
(3) Ethics elective	(3) Social science or humanities elective
(3) Humanities elective	(3) Wildlife elective
(6) Electives	(3) Elective
(17)	(15)

Wood Products Manufacturing Technology

The wood products manufacturing technology program prepares students for management positions in wood products manufacturing, particularly for the hardwood cabinet and furniture industries. It features knowledge in wood and wood products and industrial engineering technology. The Department of Forestry and Natural Resources and the College of Technology jointly administer the program.

Credit Hours Required for Graduation: 130
(See Minimum Core Graduation Requirements on page 26.)

Freshman Year

First Semester	*Second Semester*
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(4) **BTNY 21000** (Introduction to Plant Science)
(0.5) **AGR 11900** (Introduction to Forestry and Natural Resources Academic Programs)	(3) **CHM 11200** (General Chemistry)
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **COM 11400** (Fundamentals of Speech Communication)
(3) **CHM 11100** (General Chemistry)	(3) **FNR 10300** (Introduction to Environmental Conservation)
(4) **ENGL 10600** (First-Year Composition)	(3) **MA 22400** (Introductory Analysis II)
(1) **FNR 19600** (Freshman Natural Resources Seminar)	
(3) **MA 22300** (Introductory Analysis I)	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **CNIT 13600** (Personal Computing Technology and Applications)	(3) **CGT 11000** (Technical Graphics Communications)
(3) **FNR 22500** (Dendrology)	(3) **FNR 30100** (Wood Products and Processing)
(3) **IT 10400** (Industrial Organization)	(3) **IT 11400** (Problem-Solving in Manufacturing)
(3) **MET 14100** (Materials I)	(3) Humanities elective
(3) **STAT 30100** (Elementary Statistical Methods)	(4) Physics elective
(1) Elective	
(16)	(16)

Junior Year

Fifth Semester	*Sixth Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(3) **FNR 31100** (Wood Structure, Identification, and Properties)
(3) **ENGL 42100** (Technical Writing)	(3) **MET 24200** (Manufacturing Processes II)
(3) **FNR 41800** (Properties of Wood Related to Manufacturing)	(3) Humanities elective
(3) **IT 34200** (Introduction to Statistical Quality)	(3) Social science or humanities elective
(1) Mathematics or sciences elective	(5) Electives
(3) Social science or humanities elective	
(16)	(17)

Senior Year

Seventh Semester	*Eighth Semester*
(3) **FNR 40600** (Natural Resource and Environmental Economics)	(3) **FNR 41900** (Furniture and Cabinet Design and Manufacture)
(3) **FNR 42500** (Secondary Wood Products Manufacturing)	(3) **IT 48300** (Facility Design for Lean Manufacturing)
(3) **IT 44200** (Production Planning)	(9) Electives
(3) **IT 45000** (Production Cost Analysis)	
(3) Social science or humanities elective	
(3) Specialization elective	
(18)	(15)

Associate in Agriculture Degree Curricula

Agricultural Economics

Credit Hours Required for Graduation: 65

Freshman Year

First Semester	*Second Semester*
(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness)	(4) **ENGL 10600** (First-Year Composition)
(0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)	(3) Agricultural elective
(0.5) **AGR 11200** (Introduction to Agricultural Economics Academic Programs)	(3) Calculus or statistics elective
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Economics elective
(6) Agricultural electives	(3) Mathematics or sciences elective
(3) Mathematics or sciences elective	
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(6) Agricultural economics, economics, or management electives	(6) Agricultural economics, economics, or management electives
(3) Agricultural elective	(5) Agricultural electives
(3) Mathematics or sciences elective	(3) Mathematics or sciences elective
(3) Social science or humanities elective	(2) Elective
(2) Elective	
(17)	(16)

Agricultural Systems Management

Credit Hours Required for Graduation: 65

Freshman Year

First Semester	*Second Semester*
(3) **ASM 10400** (Introduction to Agricultural Systems)	(3) **AGEC 21700** (Economics)
(3) **CHM 11100** (General Chemistry)	(3) **ASM 10500** (Agricultural Systems Computations and Communication)
(4) **ENGL 10600** (First-Year Composition)	(3) **CHM 11200** (General Chemistry)
(4) Biological sciences elective	(3) Calculus or statistics elective
(3) Option elective	(3) Social science or humanities elective
(17)	(15)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 31000** (Farm Organization) **or** (3) **AGEC 33000** (Management Methods for Agricultural Business)	(3) **ASM 24500** (Materials Handling and Processing)
(3) **ASM 22200** (Crop Production Equipment)	(1) **ASM 35000** (Safety in Agriculture)
(3) **ASM 34500** (Power Units and Power Trains)	(3) **ENGL 42000** (Business Writing)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) Marketing farm products or marketing management of agricultural business elective
(6) Option electives	(3) Option elective
	(2) Elective
(18)	(15)

Agronomy

Credit Hours Required for Graduation: 65

Freshman Year

First Semester	*Second Semester*
(3) **CHM 11100** (General Chemistry)	(3) **CHM 11200** (General Chemistry)
(3) **COM 11400** (Fundamentals of Speech Communication)	(4) **ENGL 10600** (First-Year Composition)
(3) Agricultural elective	(3) Agricultural elective
(4) Biology or botany elective	(3) Agronomy elective
(3) Elective	(3) Statistics or calculus elective
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **AGEC 21700** (Economics)	(3) Agronomy crops or turf elective
(3) **AGRY 25500** (Soil Science)	(3) Agronomy soils elective
(1) **AGRY 39800** (Agronomy Seminar)	(3) Mathematics or sciences elective
(3) Agricultural elective	(3) Social science or humanities elective
(3) Mathematics or sciences elective	(6) Electives
(2) Elective	
(15)	(18)

Animal Sciences

Credit Hours Required for Graduation: 68

Freshman Year

First Semester	*Second Semester*
(4) **BIOL 11000** (Fundamentals of Biology I)	(3) **CHM 11200** (General Chemistry)
(3) **CHM 11100** (General Chemistry)	(3) **COM 11400** (Fundamentals of Speech Communication)
(4) **ENGL 10600** (First-Year Composition)	(3) Biological sciences elective
(6) Agricultural electives	(3) Calculus or statistics elective
	(3) Economics elective
	(3) Introduction to animal agriculture or biology of companion animals elective
(17)	(18)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **ANSC 22100** (Principles of Animal Nutrition)	(3) **AGRY 32000** (Genetics)
(4) **ANSC 23000** (Physiology of Domestic Animals)	(3) Animal production management elective
(3) Social science or humanities elective	(3) Animal science elective (30000+ level)
(3) Written or oral communication elective	(3) International understanding elective
(4) Electives	(4) Electives
(17)	(16)

Horticulture

Credit Hours Required for Graduation: 65

Freshman Year

First Semester	*Second Semester*
(3) **CHM 11100** (General Chemistry)	(3) **AGEC 21700** (Economics)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) **AGRY 25500** (Soil Science)
(3) **HORT 10100** (Fundamentals of Horticulture)	(4) **ENGL 10600** (First-Year Composition)
(4) Plant biology elective	(3) **HORT 20100** (Plant Propagation)
(3) Elective	(3) Mathematics or sciences elective
(16)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(2) Career elective	(6) Career electives
(3) Crop protection elective	(3) Crop protection elective
(3) Horticultural plant materials elective	(3) Horticultural production electives
(2) Mathematics or sciences elective	(5) Electives
(3) Social science or humanities elective	
(3) Statistics or calculus elective	
(16)	(17)

Interdisciplinary Agriculture

Credit Hours Required for Graduation: 65

Freshman Year

First Semester	*Second Semester*
(3) **CHM 11100** (General Chemistry)	(3) **AGEC 21700** (Economics)
(3) **COM 11400** (Fundamentals of Speech Communication)	(3) **CHM 11200** (General Chemistry)
(3) Agricultural elective	(4) **ENGL 10600** (First-Year Composition)
(3) Biological sciences elective	(3) **MA 22000** (Introduction to Calculus)
(3) Elective	(3) Agricultural elective
(15)	(16)

Sophomore Year

Third Semester	*Fourth Semester*
(3) **STAT 30100** (Elementary Statistical Methods)	(3) Agricultural elective
(3) Agricultural elective	(9) Directed professional electives
(3) Directed professional elective	(6) Electives
(3) Social science or humanities elective	
(4) Elective	
(16)	(18)

Academic Minors

The 21 academic minors offered by the College of Agriculture may be applied to all Purdue University baccalaureate degree major programs of study except when majors and minors have the same title.

Agricultural Systems Management

Credit Hours Required: 19

(3) **ASM 22200** (Crop Production Equipment)
(3) **ASM 34500** (Power Units and Power Trains)
(1) **ASM 35000** (Safety in Agriculture)
(3) **ASM 42000** (Electric Power and Controls)

Electives: Nine credits from the following courses must be completed. Three credits may be from courses other than Agricultural Systems Management (ASM). At least six credits must be 30000+ level courses.

(3) **AGEC 31000** (Farm Organization)
(3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **AGRY 37500** (Crop Production Systems)
(3) **ASM 24500** (Materials Handling and Processing)
(3) **ASM 32200** (Technology for Precision Agriculture)
(3) **ASM 33300** (Facilities Planning and Management)
(3) **ASM 33600** (Environmental Systems Management)
(3) **ASM 47700** (Rural Environmental Waste Management)
(3) **MGMT 45500** (Legal Background for Business I)
(3) **OLS 25200** (Human Relations in Organizations)
(3) **OLS 27400** (Applied Leadership)

Animal Science

Credit Hours Required: 18

One course must be completed in at least two of the following areas.

Nutrition

(3) **ANSC 22100** (Principles of Animal Nutrition)

Physiology

(4) **ANSC 23000** (Physiology of Domestic Animals)
(4) **BIOL 20300** (Human Anatomy and Physiology)
(4) **BIOL 20400** (Human Anatomy and Physiology)

Genetics

(4) **ANSC 31100** (Animal Breeding)
(3) **ANSC 51100** (Population Genetics)
(3) **ANSC 51400** (Animal Biotechnology)
(3) **BIOL 41500** (Introduction to Molecular Biology)

Products

(3) **ANSC 20100** (Functional Anatomy and Animal Performance)
(4) **ANSC 30100** (Animal Growth, Development, and Evaluation)
(3) **ANSC 35100** (Meat Science)
(3) **ANSC 36800** (Dairy Products)

The remainder of the 18 credits may be completed from other courses listed above, or from Animal Sciences (ANSC) courses numbered 30100 or higher. Not more than four total credits from ANSC 37000, 37100, 37200, 47000, 47100, and 47200 may be used. Only one of the physiology courses listed above may be used to satisfy the minor.

Crop Science

Credit Hours Required: 18

(3) **AGRY 10500** (Crop Production) **or**
(3) **AGRY 37500** (Crop Production Systems)
(3) **AGRY 25500** (Soil Science)
(3) **AGRY 52500** (Crop Physiology and Ecology)

Electives: nine credits from the following courses must be completed.

(3) **AGRY 10500** (Crop Production) **or** (1–2) **AGRY 20400** (Crop and Weed Identification)
(2) **AGRY 30500** (Seed Analysis and Grain Grading)
(2) **AGRY 30600** (Seed Technology)
(3) **AGRY 32000** (Genetics)
(1) **AGRY 32100** (Genetics Laboratory)
(3) **AGRY 36500** (Soil Fertility)
(3) **AGRY 50500** (Forage Management)
(3) **AGRY 51500** (Plant Mineral Nutrition)
(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **BTNY 30400** (Introductory Weed Science)
(2) **ENTM 20600** (General Entomology)
(1) **ENTM 20700** (General Entomology Laboratory)

Entomology

Credit Hours Required: 17

Credits must be earned in each of the following areas.

Overview of Entomology — *Minimum of three credits.*

(2) **ENTM 20600** (General Entomology)
(1) **ENTM 20700** (General Entomology Laboratory)

Insect Taxonomy — *Minimum of four credits.*

(4) **ENTM 33500** (Introduction to Insect Identification)
(4) **ENTM 50600** (Advanced Insect Taxonomy)

Insect Biology — *Minimum of three credits.*

(3) **ENTM 21000** (Introduction to Insect Behavior)
(3) **ENTM 31100** (Insect Ecology)
(2) **ENTM 32000** (Biodiversity)
(3) **ENTM 46000** (Aquatic Entomology)
(3) **ENTM 55100** (Insect Physiology and Biochemistry)

Insect Management — *Minimum of three credits.*

(3) **ENTM 44300** (Arthropods and Diseases of Turfgrass)
(3) **ENTM 51000** (Insect Pest Management)
(3) **ENTM 52100** (Urban and Industrial Insect Management)
(3) **ENTM 52500** (Medical and Veterinary Entomology)
(3) **ENTM 55500** (Theory and Practice of Biological Control)

In addition to the above listed courses, credits from the following can be applied to the total 17 credits required for a minor.

(3) **ENTM 10500** (Insects: Friend and Foe)
(1) **ENTM 11000** (Spider Biology)
(1) **ENTM 21700** (Insects in Elementary Education)
(1) **ENTM 31700** (Insects in Agricultural Education)
(3) **ENTM 35100** (Bee Biology and Bee Keeping)

Farm Management

Credit Hours Required: 18

(3) **AGEC 31000** (Farm Organization)
(3) **AGEC 31100** (Accounting for Farm Business Planning) **or** (3) **MGMT 20000** (Introductory Accounting)
(4) **AGEC 41100** (Farm Management)

Electives:

(3) **AGEC 22000** (Marketing Farm Products)
(2) **AGEC 32100** (Futures and Options Market Applications)
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making)
(1) **AGEC 42000** (Grain and Grain Products Marketing)
(1) **AGEC 42100** (Livestock and Meat Marketing)
(4) **AGEC 42400** (Financial Management of Agricultural Business)
(3) **AGEC 42500** (Estate Planning and Property Transfer)
(3) **AGEC 45500** (Agricultural Law) **or** (3) **MGMT 45500** (Legal Background for Business I)
(3) **AGEC 45600** (Federal Income Tax Law)
(3) **AGEC 52400** (Agricultural Finance)
(3) **OLS 25200** (Human Relations in Organizations) **or** (3) **OLS 27400** (Applied Leadership)

The required 18 credits are beyond the three-credit economics elective that is a part of core requirements for students in the College of Agriculture. For students from programs outside of the College of Agriculture, three credits of an economics elective are required in addition to the 18 credits noted above.

Fisheries and Aquatic Sciences

Credit Hours Required: 16

(3) **FNR 20100** (Marine Biology)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals)
(1) **FNR 24200** (Laboratory in Ecology and Systematics of Fishes and Mammals)

Electives: nine credits from the following courses must be completed.

(3) **BTNY 55500** (Aquatic Botany)
(3) **ENTM 46000** (Aquatic Entomology)
(3) **FNR 20300** (Freshwater Ecology)
(3) **FNR 45200** (Aquaculture)
(3) **FNR 45300** (Fish Physiology)
(3) **FNR 45400** (Fisheries Science and Management)
(3) **FNR 45500** (Fish Ecology)

Food and Agribusiness Management

Credit Hours Required: 18

(3) **AGEC 20300** (Introductory Microeconomics for Food and Agribusiness) **or** (3) **AGEC 20400** (Introduction to Resource Economics and Environmental Policy)
(3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **MGMT 20000** (Introductory Accounting) **or** (3) **AGEC 31100** (Accounting for Farm Business Planning)

Electives: nine credits from the following courses must be completed. At least six credits must be Agricultural Economics (AGEC) courses.

(3) **AGEC 22000** (Marketing Farm Products)
(2) **AGEC 32100** (Futures and Options Market Application)
(3) **AGEC 33100** (Principles of Selling in Agricultural Business)
(3) **AGEC 33300** (Food Distribution — A Retailing Perspective)
(3) **AGEC 35200** (Quantitative Techniques for Firm Decision Making)
(1) **AGEC 42000** (Grain and Grain Products Marketing)
(1) **AGEC 42100** (Livestock and Meat Marketing)
(1) **AGEC 42200** (Technical Price Analysis)
(4) **AGEC 42400** (Financial Management of Agricultural Business)
(3) **AGEC 42500** (Estate Planning and Property Transfer)
(3) **AGEC 42600** (Marketing Management of Agricultural Business)
(2) **AGEC 42700** (Advanced Agribusiness Marketing)
(2) **AGEC 42900** (Agribusiness Marketing Workshop)
(3) **AGEC 43000** (Agricultural and Food Business Strategy)
(4) **AGEC 43100** (Advanced Agri-Sales and Marketing)
(3) **AGEC 43500** (Leadership in a Changing World)
(1) **AGEC 44000** (Advanced Futures Topics)
(3) **AGEC 45100** (Applied Econometrics)
(3) **AGEC 45500** (Agricultural Law)
(3) **AGEC 45600** (Federal Income Tax Law)
(1–3) **AGEC 49600** (Selected Topics in Agribusiness Management)
(3) **AGEC 50600** (Agricultural Marketing and Price Analysis)
(3) **AGEC 52400** (Agricultural Finance)
(3) **AGEC 52500** (Environmental Policy Analysis)
(3) **AGEC 52600** (International Food and Agribusiness Marketing Strategy)
(3) **AGEC 53000** (Strategic Agribusiness Management)
(3) **AGEC 53300** (Supply Chain Management for Food and Agribusiness)
(3) **CSR 20900** (Introduction to Retail Management)
(3) **CSR 28200** (Customer Relations Management)
(3) **CSR 30900** (Leadership Strategies)
(3) **CSR 31500** (Personal Preparation for Selling)
(3) **CSR 33100** (Consumer Behavior)
(3) **CSR 33200** (Cross-Cultural Marketing and International Retailing)
(3) **CSR 34200** (Personal Finance)
(3) **CSR 38600** (Risk Management)
(3) **CSR 40100** (Buying of Merchandise)
(3) **CSR 40400** (Strategic Issues for Sales and Retailing)
(3) **CSR 40600** (E-Retailing)
(3) **CSR 41500** (Sales Force Management)
(3) **CSR 41700** (Relationship Selling)
(2) **CSR 48100** (Ethics and Compliance in Financial Counseling and Planning)
(3) **CSR 48400** (Consumer Investment and Savings Decisions)
(3) **CSR 48500** (Case Studies in Financial Planning)
(3) **CSR 48600** (Retirement Planning and Employee Benefits)
(4) **HORT 43500** (Principles of Marketing and Management for Horticultural Businesses)

Any Management (MGMT) or Organizational Leadership and Supervision (OLS) course at the 20000 level or above is acceptable. Only one course from OLS 25200 and OLS 27400 may be used.

Food Science

Credit Hours Required: 18

Food Science Foundations — *Ten credits required.*

(3) **FS 16100** (Science of Food)
(3) **FS 36200** (Food Microbiology)
(4) **FS 45300** (Food Chemistry)

Food Processing — *Two to four credits required.*

(3) **ANSC 35100** (Meat Science)
(1) **ANSC 35101** (Meat Science Laboratory)
(3) **FS 24500** (Food Packaging)
(3) **FS 34100** (Food Processing I)
(3) **FS 36800** (Dairy Products)
(3) **FS 44200** (Food Processing II)
(2) **FS 45500** (Cereal Chemistry and Processing)
(1) **FS 54100** (Postharvest Technology of Fruit and Vegetables)

Additional Food Science Courses — *Four to six credits required.*

(3) **FN 31500** (Fundamentals of Nutrition)
(1) **FS 36100** (Food Plant Sanitation)
(3) **FS 43100** (Physical Chemistry for Food and Agriculture)
(1) **FS 44400** (Statistical Process Control)
(2) **FS 44600** (Food Process Automation)
(4) **FS 46700** (Food Analysis)
(2) **FS 56400** (Food Fermentations)

(3) **ANSC 22100** (Principles of Animal Nutrition) may be substituted for (3) **FN 31500** (Fundamentals of Nutrition), but FN 31500 is preferred.

Forensic Sciences

Credit Hours Required: 19

(3) **ENTM 21800** (Introduction to Forensic Science)
(4) **ENTM 31800** (Criminalistics)
(3) **ENTM 41800** (Advanced Criminalistics)

Electives: nine credits must be completed from the following courses.

(3) **AGRY 33500** (Weather and Climate)
(3) **ANTH 33600** (Human Variation)
(3) **ANTH 42500** (Anthropological Archaeology)
(3) **ANTH 53400** (Human Osteology)
(3) **BCHM 30700** (Biochemistry)
(1) **BCHM 30900** (Biochemistry Laboratory)
(4) **BIOL 20300** (Human Anatomy and Physiology)
(4) **BIOL 20400** (Human Anatomy and Physiology)
(4) **BIOL 22100** (Introduction to Microbiology)
(2) **BIOL 27000** (Cell Structure and Function)
(2) **BIOL 27100** (Laboratory in Cell Structure and Function)
(2) **BIOL 28000** (Genetics and Molecular Biology)
(2) **BIOL 28100** (Laboratory in Genetics and Molecular Biology)
(4) **CHM 22400** (Introductory Quantitative Analysis)
(4) **CHM 25700** (Organic Chemistry)
(1) **CHM 25701** (Organic Chemistry Laboratory)
(2) **ENTM 20600** (General Entomology)
(1) **ENTM 20700** (General Entomology Laboratory)
(3) **ENTM 21000** (Introduction to Insect Behavior)
(4) **ENTM 33500** (Introduction to Insect Identification)
(3) **ENTM 55100** (Insect Physiology and Biochemistry)
(2) **HSCI 33200** (Introduction to Hematology)
(2) **HSCI 33300** (Introduction to Immunology)
(3) **HSCI 56000** (Toxicology)
(3) **PSY 23500** (Child Psychology)
(3) **PSY 24000** (Introduction to Social Psychology)
(3) **PSY 33300** (Motivation)
(3) **PSY 35000** (Abnormal Psychology)
(3) **PSY 41100** (Psychology and Law)
(3) **PSY 44400** (Human Sexual Behavior)
(3) **PSY 53500** (Psychology of Death and Dying)
(3) **SOC 32400** (Criminology)
(3) **SOC 32800** (Criminal Justice)
(3) **SOC 35600** (Hate and Violence)
(3) **SOC 41900** (Sociology of Law)
(3) **SOC 42600** (Social Deviance and Control)
(3) **SOC 45400** (Family Violence)
(4) **PHYS 21800** (General Physics)
(4) **PHYS 21900** (General Physics II)
(4) **PHYS 22000** (General Physics)
(4) **PHYS 22100** (General Physics)
(3) **CGT 11600** (Geometric Modeling for Visualization and Communication)
(3) **CGT 21100** (Raster Imaging for Computer Graphics)
(3) **CGT 24100** (Introduction to Computer Animation)
(3) **CGT 26200** (Introduction to Construction Graphics)
(3) **CGT 34000** (Digital Lighting and Rendering for Computer Animation)

Furniture Design

Credit Hours Required: 18

(3) **AD 53500** (Furniture Design)
(3) **FNR 31100** (Wood Structure, Identification, and Properties)
(3) **FNR 41800** (Properties of Wood Related to Manufacturing)
(3) **FNR 41900** (Furniture and Cabinet Design and Manufacture)
(3) **FNR 42500** (Secondary Wood Products Manufacturing)
(3) **FNR 48400** (Design for Computer Numerical Controlled Manufacturing)

Horticulture

Credit Hours Required: 18

Fundamentals of Horticulture or Plant Biology — *Three credits required.*

(4) **BTNY 21000** (Introduction to Plant Science) or three credits of plant biology
(3) **HORT 10100** (Fundamentals of Horticulture)

Plant Propagation — *Three credits required.*

(3) **HORT 20100** (Plant Propagation)

Electives: twelve credits of horticulture (HORT) at 20000+ level.

International Studies in Agriculture

Credit Hours Required: 15–31

- Departmental permission is required to enroll in this minor. Contact Allan D. Goecker in Room 121 of the Agricultural Administration Building.
- To qualify for this minor, students normally will be expected to focus on a specific country or geographical region.

- Individuals must demonstrate proficiency in a second language by completing or establishing credit by examination in the fourth course in a language (Language 20200) and by completing a conversation course in the language, if offered. Language proficiency may also be demonstrated by successfully passing the Foreign Service Institute examination at Level 2 in both reading and speaking.
- Students must complete a minimum of 15 semester credits of courses with a principal international focus in the areas of culture (anthropology, art, literature, philosophy, or sociology), political science, history, or economics. A minimum of six credits of this course work must be focused on the geographic region of choice. A minimum of six credits must be completed outside of the College of Agriculture.
- Individuals must participate in an approved cooperative work, internship, study abroad, or cultural exchange experience of eight weeks or more in the selected geographic region.
- Students must submit a summary paper and make an oral presentation documenting the integration of the various learning and experiential activities that were undertaken in the foreign stay.
- Students from any College of Agriculture major may earn the international studies minor. The Office of International Programs in Agriculture will provide special counsel to students regarding program operations, including the identification and coordination of out-of-country experiences.

Natural Resources and Environmental Science

Credit Hours Required: 15*

(3) **NRES 29000** (Introduction to Environmental Science)
(3) **NRES 38500** (Environmental Soil Chemistry)

Electives: nine credits from the following courses must be completed.

(3) **ABE 52500** (Irrigation Management and Design)
(3) **ABE 52600** (Watershed Systems Design)
(3) **AGEC 40600** (Natural Resource and Environmental Economics)
(3) **AGEC 52500** (Environmental Policy Analysis)
(3) **AGRY 33700** (Environmental Hydrology)
(3) **AGRY 34900** (Soil Ecology)
(3) **AGRY 54400** (Environmental Organic Chemistry)
(3) **ASM 33600** (Environmental Systems Management)
(3) **BIOL 48300** (Environmental and Conservation Biology)
(3) **BTNY 55500** (Aquatic Botany)
(3) **CE 35000** (Environmental Engineering)
(3) **CE 35200** (Biological Principles of Environmental Engineering)
(3) **CE 55500** (Microbial Degradation of Pollutants)
(3) **EAS 31300** (Applied Geomorphology)
(3) **EAS 51300** (Aerogeology and Remote Sensing)
(3) **EAS 58300** (Geology of Landfills)
(3) **ENTM 46000** (Aquatic Entomology)
(3) **FNR 35700** (Fundamental Remote Sensing)
(3) **FNR 48800** (Global Environmental Issues)
(3) **FNR 50100** (Limnology)
(1) **NRES 20000** (Introduction to Environmental Careers)
(3) **NRES 23000** (Survey of Meteorology)
(3) **NRES 25500** (Soil Science)
(3) **NRES 28000** (Hazardous Waste Handling)
(0) **NRES 38000** (Hazardous Waste Certification Renewal)
(3) **NRES 45000** (Soil Conservation and Water Management)

Pet Food Processing

Credit Hours Required: 21

(3) **ANSC 10600** (Biology Companion Animal)†
(3) **ANSC 32400** (Applied Animal Nutrition)
(3) **ANSC 44600** (Companion Animal Management)
(3) **FS 16100** (Science of Food)
(3) **FS 34100** (Food Processing I)
(3) **FS 36200** (Food Microbiology)
(3) **FS 44200** (Food Processing II)

Plant Biology

Credit Hours Required: 15

(4) **BTNY 21000** (Introduction to Plant Science)

Electives: eleven additional credits must be completed from the following courses, including at least nine credits at the 30000 level or above.

(3) **BIOL 59500** (Cell Biology of Plants)
(3) **BTNY 21100** (Plants and the Environment)
(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **BTNY 30400** (Introductory Weed Science)
(3) **BTNY 30500** (Fundamentals of Plant Classification)
(4) **BTNY 31600** (Plant Anatomy)
(3) **BTNY 35000** (Biotechnology in Agriculture)
(1–3) **BTNY 49800** (Research in Plant Science)‡
(3) **BTNY 55000** (Biology of Fungi)
(3) **BTNY 55300** (Plant Growth and Development)
(3) **BTNY 55500** (Aquatic Botany)
(4) **HORT 30001** (Plant Physiology)

** At least nine of the fifteen credits must be taken at the 30000+ level.*
† The three-credit course **ANSC 10200** *(Introduction to Animal Agriculture) can be substituted for ANSC 10600, but ANSC 10600 is preferred for this minor.*
‡ A maximum of three credits of BTNY 49800 or comparable research in plant sciences may be applied to the minor.

Plant Pathology

Credit Hours Required: 19

(4) **BTNY 21000** (Introduction to Plant Science)
(3) **BTNY 30100** (Introductory Plant Pathology)
(3) **BTNY 52500** (Intermediate Plant Pathology)
(3) **BTNY 53500** (Plant Disease Management)

Electives: six credits from the following courses must be completed.

(3) **BTNY 44600** (Integrated Plant Health Management in Ornamental Plants)
(1–3) **BTNY 49800** (Research in Plant Science)*
(1) **BTNY 51500** (Diseases of Fruit Crops)
(1) **BTNY 51600** (Diseases of Vegetable Crops)
(1) **BTNY 51700** (Diseases of Agronomic Crops)
(3) **BTNY 55000** (Biology of Fungi)

Soil Science

Credit Hours Required: 18

(3) **AGRY 25500** (Soil Science)
(3) **AGRY 36500** (Soil Fertility)

Electives: twelve credits from the following courses must be completed.

(3) **AGRY 29000** (Introduction to Environmental Science)
(3) **AGRY 34900** (Soil Ecology)
(2) **AGRY 35500** (Soil Morphology and Geography)
(3) **AGRY 38500** (Environmental Soil Chemistry)
(3) **AGRY 45000** (Soil Conservation and Water Management)
(3) **AGRY 46500** (Soil Physical Properties)
(3) **AGRY 51500** (Plant Mineral Nutrition)
(3) **AGRY 54000** (Soil Chemistry)
(3) **AGRY 54400** (Environmental Organic Chemistry)
(3) **AGRY 54500** (Remote Sensing of Land Resources)
(3) **AGRY 55500** (Soil and Plant Analysis)
(3) **AGRY 56000** (Soil Physics)
(3) **AGRY 56500** (Soil Classification, Genesis, and Survey)
(3) **AGRY 58000** (Soil Microbiology)
(3) **AGRY 58500** (Soils and Land Use)

Urban Forestry

Credit Hours Required: 15

(4) **FNR 44400** (Arboricultural Practices)
(3) **FNR 44500** (Urban Forestry Issues)

Electives: eight additional credits from the following courses must be completed.

(1) **BTNY 51800** (Diseases of Landscape Trees and Shrubs)
(3) **FNR 43400** (Tree Physiology)
(3) **FNR 43500** (Physiological Ecology of Woody Plants)
(4) **HORT 21700** (Woody Landscape Plants)
(4) **HORT 30100** (Plant Physiology)
(3) **HORT 31700** (Landscape Contracting and Management)

Weed Science

Credit Hours Required: 15

(4) **BTNY 21000** (Introduction to Plant Science)
(3) **BTNY 30400** (Introductory Weed Science)
(3) **BTNY 50400** (Advanced Weed Science) **or**
(3) **BTNY 50500** (Advanced Biology of Weeds)

Electives: five credits from the following courses must be completed.

(1) **BTNY 20400** (Crop and Weed Identification)
(3) **BTNY 21100** (Plants and the Environment)
(3) **BTNY 30200** (Plant Ecology)
(3) **BTNY 30500** (Fundamentals of Plant Classification)
(4) **BTNY 31600** (Plant Anatomy)
(3) **BTNY 35000** (Biotechnology in Agriculture)
(1–3) **BTNY 49800** (Research in Plant Science)*
(3) **BTNY 55500** (Aquatic Botany)
(1) **BTNY 55600** (Aquatic Pest Management)
(4) **HORT 30100** (Plant Physiology)

Wildlife Science

Credit Hours Required: 17

(3) **FNR 24000** (Wildlife in America)
(3) **FNR 24100** (Ecology and Systematics of Fishes and Mammals)
(1) **FNR 24200** (Laboratory in Ecology and Systematics of Fishes and Mammals)
(3) **FNR 25100** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
(1) **FNR 25200** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)

** A maximum of three credits of BTNY 49800 or comparable research in plant sciences may be applied to the minor.*

Electives: six credits from the following courses must be completed.

(3) **FNR 30500** (Conservation Genetics)
(3) **FNR 35900** (Spatial Ecology and GIS)
(4) **FNR 44700** (Vertebrate Population Dynamics)
(2) **FNR 52600** (Aquatic Animal Health)
(2) **FNR 52700** (Ecotoxicology)
(3) **FNR 54300** (Conservation Biology I)
(3) **FNR 57100** (Advanced Orinithology)
All department-approved FNR 49800 or FNR 59800 courses.

Wood Products Manufacturing Technology

Credit Hours Required: 18

(3) **FNR 30100** (Wood Products and Processing)
(3) **FNR 31100** (Wood Structure, Identification, and Properties)
(3) **FNR 41800** (Products of Wood Related to Manufacturing)
(3) **FNR 42500** (Secondary Wood Products Manufacturing)
(3) **IT 10400** (Industrial Organization)
(3) **IT 11400** (Problem-Solving in Manufacturing)

Information about Courses

Official Purdue University course information is available on the Web at www.courses.purdue.edu. Click on the "Search by term" link at the top of the page.

The Official Purdue University Course Repository is maintained by the Office of the Registrar and is updated instantaneously. It contains a multitude of information, including course descriptions and requisites for retired, current, and future courses offered at the West Lafayette campus as well as at Purdue Calumet, Purdue North Central, Indiana University-Purdue University Fort Wayne, Indiana University-Purdue University Indianapolis, and the College of Technology locations around the state.

The course information available online is organized by term, subject area, and course number, which enables you to tailor your search. You also may want to consult your academic advisor if you have questions about the courses required for your plan of study.

College of Agriculture Administration, Faculty, and Teaching Staff

Administration

Jay T. Akridge, ***Ph.D.,*** Glen W. Sample Dean of Agriculture

James M. Lowenberg-DeBoer, ***Ph.D.,*** Associate Dean and Director of International Programs in Agriculture

Mark A. Hermodson, ***Ph.D.,*** Interim Associate Dean and Director of Agricultural Research Programs

Charles A. Hibberd, ***Ph.D.,*** Associate Dean and Director of Purdue Cooperative Extension Service

A. Dale Whittaker, ***Ph.D.,*** Associate Dean and Director of Academic Programs

Allan D. Goecker, ***Ph.D.,*** Assistant Dean and Associate Director of Academic Programs

John G. Graveel, ***Ph.D.,*** Assistant Dean of Academic Programs

Pamala V. Morris, ***Ph.D.,*** Assistant Dean of Diversity Programs

Heads of Instructional Departments

Clint C. S. Chapple, ***Ph.D.,*** Head of the Department of Biochemistry

Bernard A. Engel, ***Ph.D.,*** Head of the Department of Agricultural and Biological Engineering

Kenneth A. Foster, ***Ph.D.,*** Head of the Department of Agricultural Economics

Peter B. Goldsbrough, ***Ph.D.,*** Head of the Department of Botany and Plant Pathology

Robert J. Joly, ***Ph.D.,*** Head of the Department of Horticulture and Landscape Architecture

S. Suzanne Nielsen, ***Ph.D.,*** Head of the Department of Food Science

Herbert W. Ohm, ***Ph.D.,*** Interim Head of the Department of Agronomy

Alan L. Sutton, ***Ph.D.,*** Interim Head of the Department of Animal Sciences

Robert K. Swihart, ***Ph.D.,*** Head of the Department of Forestry and Natural Resources

Roger L. Tormoehlen, ***Ph.D.,*** Head of the Department of Youth Development and Agricultural Education

John S. Yaninek, ***Ph.D.,*** Head of the Department of Entomology

Agricultural and Biological Engineering

B. A. Engel, Head of the Department

Distinguished and Named Professors: M. Ivantysynova, *Ph.D., Maha Named Professor in Fluid Power Systems;* M. R. Ladisch, *Ph.D., Distinguished Professor of Agricultural and Biological Engineering;* B. Y. Tao, *Ph.D., Indiana Soybean Board Professor of Soybean Utilization*

Professors: V. F. Bralts, *Ph.D.;* O. H. Campanella, *Ph.D.;* N. J. Carroll, *Ph.D.;* B. A. Engel, *Ph.D.;* W. E. Field, *Ed.D.;* J. R. Frankenberger, *Ph.D.;* K. Haghighi, *Ph.D.;* A. J. Heber, *Ph.D.;* J. Irudayaraj, *Ph.D.;* G. W. Krutz, *Ph.D.;* R. H. Mohtar, *Ph.D.;* G. Narsimhan, *Ph.D.;* M. R. Okos, *Ph.D.;* R. L. Stroshine, *Ph.D.;* A. D. Whittaker, *Ph.D.*

Professors Emeriti: J. R. Barrett, *M.S.;* A. D. Brown, *M.S. Ed.;* H. G. Gibson, *M.S.;* C. N. Hinkle, *Ph.D.;* L. F. Huggins, *Ph.D.;* G. W. Isaacs, *Ph.D.;* D. D. Jones, *Ph.D.;* B. A. McKenzie, *M.S.;* G. E. Miles, *Ph.D.;* R. M. Peart, *Ph.D.;* R. M. Strickland, *Ph.D.;* R. Z. Wheaton, *D. Eng*.

Associate Professors: D. Buckmaster, *Ph.D.;* I. Chaubey, *Ph.D.;* V. G. Duffy, *Ph.D.;* D. R. Ess, *Ph.D.;* C. Lu, *Ph.D.;* N. S. Mosier, *Ph.D.;* D. M. Porterfield, *Ph.D;* J. L. Rickus, *Ph.D.*

Assistant Professors: K. A. Cherkauer, *Ph.D.;* K. Ileleji, *Ph.D.;* J. H. Lumkes Jr., *Ph.D.;* D. M. Umulis, *Ph.D.*

Adjunct Professors: D. C. Flanagan, *Ph.D.;* D. E. Maier, *Ph.D.;* L. D. Norton, *Ph.D.*

Adjunct Associate Professor: W. E. Vermerris, *Ph.D.*

Adjunct Assistant Professors: E. A. Pappas, *Ph.D.;* H. Sumali, *Ph.D.*

Research Assistant Professors: T. Lim, *Ph.D.;* J. Ni, *Ph.D.;* M. Sedlak, *Ph.D.*

Agricultural Economics

K. A. Foster, Head of the Department

Distinguished and Named Professors: M. D. Boehlje, *Ph.D., Distinguished Professor of Agricultural Economics;* T. W. Hertel, *Ph.D., Distinguished Professor of Agriculture;* M. T. Holt, *Ph.D., Wickersham Chair of Excellence in Agricultural Research;* W. E. Tyner, *Ph.D., James and Lois Ackerman Professor of Agricultural Economics*

Professors: P. C. Abbott, *Ph.D.;* J. T. Akridge, *Ph.D.;* J. S. Ayres, *Ph.D.;* T. G. Baker, *Ph.D.;* F. L. Barnard, *Ph.D.;* J. K. Binkley, *Ph.D.;* J. M. Connor, *Ph.D.;* S. M. Cordes, *Ph.D.;* L. P. DeBoer Jr., *Ph.D.;* C. L. Dobbins, *Ph.D.;* O. C. Doering III, *Ph.D.;* F. J. Dooley, *Ph.D.;* J. S. Eales, *Ph.D.;* R. Florax, *Ph.D.;* K. A. Foster, *Ph.D.;* J. R. Fulton, *Ph.D.;* A. W. Gray, *Ph.D.;* G. A. Harrison, *Ph.D.;* C. A. Hurt, *Ph.D.;* J. G. Lee, *Ph.D.;* J. M. Lowenberg-DeBoer, *Ph.D.;* M. A. Martin, *Ph.D.;* W. A. Masters, *Ph.D.;* K. T. McNamara, *Ph.D.;* J. R. Mintert, *Ph.D.;* P. L. Paarlberg, *Ph.D.;* G. F. Patrick, *Ph.D.;* P. V. Preckel, *Ph.D.;* J. H. Sanders, *Ph.D.;* G. E. Shively, *Ph.D.;* S. Thompson, *Ph.D.;* B. S. Waldorf, *Ph.D.*

Professors Emeriti: J. H. Atkinson, *Ph.D.;* E. M. Babb Jr., *Ph.D.;* D. H. Bache, *Ph.D.;* L. P. Bohl, *Ph.D.;* D. H. Doster, *Ph.D.;* W. D. Downey, *Ph.D.;* P. L. Farris, *Ph.D.;* W. S. Farris, *Ph.D.;* L. S. Hardin, *Ph.D.;* J. M. Huie, *Ph.D.;* B. F. Jones, *Ph.D.;* E. W. Kehrberg, *Ph.D.;* E. T. Loehman, *Ph.D.;* S. B. Lovejoy, *Ph.D.;* W. H. M. Morris, *Ph.D.;* D. C. Petritz, *Ph.D.;* M. T. Pond, *Ph.D.;* L. F. Schrader, *Ph.D.;* R. C. Suter, *Ph.D.;* R. W. Taylor, *Ph.D.;* J. N. Uhl, *Ph.D.;* J. W. Uhrig, *Ph.D.;* H. A. Wadsworth Jr., *Ph.D.;* R. B. Wilson, *Ph.D.*

Associate Professors: C. E. Alexander, *Ph.D.;* J. L. Dennis, *Ph.D.;* M. I. Marshall, *Ph.D.;* H. Wang, *Ph.D.;* S. Y. Wu, *Ph.D.*

Assistant Professors: J. V. Balagtas, *Ph.D.;* S. E. Chen, *Ph.D.;* W. S. Downey, *Ph.D.;* B. M. Gramig, *Ph.D.;* R. M. Keeney, *Ph.D.;* N. J. Olynk, *Ph.D.*

Research Assistant Professor: T. L. Walmsley, *Ph.D.*

Agriculture

A. D. Goecker, Coordinator

Professors: J. G. Graveel, *Ph.D.;* A. D. Whittaker, *Ph.D.*

Professors Emeriti: H. R. Knaus, *B.S.;* J. B. Oliver, *M.S.;* W. G. Rice, *M.S.;* H. S. Tyler, *M.S.;* D. R. Troyer, *Ph.D.*

Agronomy

H. W. Ohm, Interim Head of the Department

Distinguished and Named Professors: M. M. Crawford, *Ph.D., Chair of Excellence in Earth Observation;* G. Ejeta, *Ph.D., Distinguished Professor of Agronomy;* S. A. Jackson, *Ph.D., Wickersham Chair of Excellence in Agricultural Research;* H. W. Ohm, *Ph.D., Distinguished Professor of Agronomy;* M. R. Tuinstra, *Ph.D., Wickersham Chair of Excellence in Agricultural Research*

Professors: S. M. Brouder, *Ph.D.;* R. W. Doerge, *Ph.D.;* R. H. Grant, *Ph.D.;* J. G. Graveel, *Ph.D.;* T. L. Housley, *Ph.D.;* B. C. Joern, *Ph.D.;* K. D. Johnson, *Ph.D.;* C. T. Johnston, *Ph.D.;* E. J. Kladivko, *Ph.D.;* V. L. Lechtenberg, *Ph.D.;* L. S. Lee, *Ph.D.;* C. H. Nakatsu, *Ph.D.;* R. L. Nielsen, *Ph.D.;* P. S. C. Rao, *Ph.D.;* Z. J. Reicher, *Ph.D.;* T. R. Rocheford, *Ph.D.;* D. G. Schulze, *Ph.D.;* A. P. Schwab, *Ph.D.;* L. E. Schweitzer, *Ph.D.;* G. C. Steinhardt, *Ph.D.;* R. F. Turco Jr., *Ph.D.;* G. E. VanScoyoc, *Ph.D.;* J. J. Volenec, *Ph.D.;* J. J. Vorst, *Ph.D.;* T. J. Vyn, *Ph.D.;* C. F. Weil, *Ph.D.*

Professors Emeriti: J. L. Ahlrichs, *Ph.D.;* M. F. Baumgardner, *Ph.D.;* C. B. Brown, *Ph.D.;* E. P. Christmas, *Ph.D.;* R. F. Dale, *Ph.D.;* R. L. Davis, *Ph.D.;* D. P. Franzmeier, *Ph.D.;* D. V. Glover, *Ph.D.;* E. L. Hood, *Ph.D.;* C. J. Johannsen, *Ph.D.;* H. R. Koller, *Ph.D.;* W. W. McFee, *Ph.D.;* W. C. Moldenhauer, *Ph.D.;* J. E. Newman, *M.S.;* C. L. Rhykerd, *Ph.D.;* C. B. Roth, *Ph.D.;* L. H. Smith, *M.S.;* C. D. Spies, *M.S.;* M. L. Swearingin, *Ph.D.;* J. R. Wilcox, *Ph.D.*

Associate Professors: C. A. Bigelow, *Ph.D.;* J. J. Camberato, *Ph.D.;* K. R. Gurney, *Ph.D.;* D. S. Niyogi, *Ph.D.;* D. B. Szymanski, *Ph.D.*

Assistant Professors: L. C. Bowling, *Ph.D.;* S. N. Casteel, *Ph.D.;* Y. Jiang, *Ph.D.;* J. Ma, *Ph.D.;* P. R. Owens, *Ph.D.;* L. J. Snyder, *Ph.D.;* Q. Zhuang, *Ph.D.*

Adjunct Professors: C. Huang, *Ph.D.;* L. D. Norton, *Ph.D.;* L. J. Qiu, *Ph.D.;* R. E. Schaffert, *Ph.D.;* D. E. Stott, *Ph.D.;* R. A. Vierling, *Ph.D.*

Adjunct Associate Professors: J. M. Anderson, *Ph.D.;* S. R. Scofield, *Ph.D.;* D. R. Smith, *Ph.D.*

Adjunct Assistant Professors: G. C. Heathman, *Ph.D.;* K. A. Hudson, *Ph.D.;* E. A. Pappas, *Ph.D.*

Animal Sciences

A. L. Sutton, Interim Head of the Department

Professors: O. Adeola, *Ph.D.;* C. A. Bidwell, *Ph.D.;* P. Collodi, *Ph.D.;* M. A. Diekman, *Ph.D.;* S. S. Donkin, *Ph.D.;* P. Y. Hester, *Ph.D.;* C. A. Hibberd, *Ph.D.;* R. P. Lemenager, *Ph.D.;* W. M. Muir, *Ph.D.;* M. A. Russell, *Ph.D.;* A. P. Schinckel, *Ph.D.;* T. S. Stewart, *Ph.D.;* A. L. Sutton, *Ph.D.*

Professors Emeriti: R. L. Adams, *Ph.D.;* J. L. Albright, *Ph.D.;* B. R. Baumgardt, *Ph.D.;* J. R. Carson, *Ph.D.;* T. R. Cline, *Ph.D.;* M. D. Cunningham, *Ph.D.;* W. M. Dillon, *Ph.D.;* J. C. Forrest, *Ph.D.;* J. R. Foster, *Ph.D.;* B. G. Harmon, *Ph.D.;* R. B. Harrington, *Ph.D.;* K. S. Hendrix, *Ph.D.;* H. W. Jones, *Ph.D.;* M. D. Judge, *Ph.D.;* J. Long, *Ph.D.;* P. V. Malven, *Ph.D.;* T. G. Martin, *Ph.D.;* V. B. Mayrose, *Ph.D.;* N. J. Moeller, *B.S.A.;* T. W. Perry, *Ph.D.;* M. P. Plumlee, *Ph.D.;* J. C. Rogler, *Ph.D.;* W. L. Singleton, *Ph.D.;* M. Stob, *Ph.D.*

Associate Professors: R. D. Allrich, *Ph.D.;* T. J. Applegate, *Ph.D.;* R. A. Cabot, *Ph.D.;* D. M. Forsyth, *Ph.D.;* M. A. Latour, *Ph.D.;* Z. Machaty, *Ph.D.;* S. E. Mills, *Ph.D.;* J. A. Patterson, *Ph.D.;* J. S. Radcliffe, *Ph.D.;* B. T. Richert, *Ph.D.;* M. M. Schutz, *Ph.D.*

Assistant Professors: K. Ajuwon, *Ph.D.;* G. A. Bridges, *Ph.D.;* P. D. Ebner, *Ph.D.;* J. P. Garner, *Ph.D.;* S. Kuang, *Ph.D.;* A. C. Lossie, *Ph.D.;* T. D. Nennich, *Ph.D.;* J. Schoonmaker, *Ph.D.;* D. R. Swartz, *Ph.D.*

Adjunct Associate Professors: H. Cheng, *Ph.D.;* S. D. Eicher, *Ph.D.*

Adjunct Assistant Professors: D. C. Lay Jr., *Ph.D.;* J. Marchant-Forde, *Ph.D.;* M. H. Rostagno, *Ph.D.*

Biochemistry

C. C. S. Chapple, Head of the Department

Distinguished and Named Professors: C. C. S. Chapple, *Ph.D., Distinguished Professor of Biochemistry*

Professors: S. S. Broyles, *Ph.D.;* H. Charbonneau, *Ph.D.;* J. D. Forney, *Ph.D.;* S. S. Rossie, *Ph.D.;* H. Weiner, *Ph.D.;* H. L. Weith, *Ph.D.*

Professors Emeriti: B. Axelrod, *Ph.D.;* K. G. Brandt, *Ph.D.;* M. A. Hermodson, *Ph.D.;* K. M. Herrmann, *Ph.D.;* K. H. Kim, *Ph.D.;* G. B. Kohlhaw, *Ph.D.;* D. W. Krogmann, *Ph.D.;* V. W. Rodwell, *Ph.D.;* R. L. Somerville, *Ph.D.;* R. L. Whistler, *Ph.D.;* H. Zalkin, *Ph.D.*

Associate Professors: S. D. Briggs, *Ph.D.;* F. S. Gimble, *Ph.D.;* B. L. Golden, *Ph.D.;* A. L. Kirchmaier, *Ph.D.;* J. P. Ogas, *Ph.D.*

Assistant Professors: J. C. Clemens, *Ph.D.;* M. C. Hall, *Ph.D.;* T. J. Kappock, *Ph.D.;* X. Liu, *Ph.D.;* W. A. Tao, *Ph.D.;* E. Tran, *Ph.D.*

Office of the State Chemist

Research Professor: R. D. Waltz, *Ph.D.*

Professor: H. S. Ragheb, *Ph.D.*

Botany and Plant Pathology

P. B. Goldsbrough, Head of the Department

Professors: J. A. Banks, *Ph.D.;* T. T. Bauman, *Ph.D.;* N. C. Carpita, *Ph.D.;* Z. Chen, *Ph.D.;* R. C. Coolbaugh, *Ph.D.;* P. B. Goldsbrough, *Ph.D.;* W. G. Johnson, *Ph.D.;* T. N. Jordan, *Ph.D.;* R. X. Latin, *Ph.D.;* C. A. Lembi, *Ph.D.;* R. D. Martyn Jr., *Ph.D.;* R. E. Pruitt, *Ph.D.;* C. P. Woloshuk, *Ph.D.;* J. Xu, *Ph.D.*

Professors Emeriti: T. S. Abney, *Ph.D.;* R. B. Ashman, *Ph.D.;* G. B. Bergeson, *Ph.D.;* C. E. Bracker, *Ph.D.;* R. J. Green, *Ph.D.;* J. F. Hennen, *Ph.D.;* T. K. Hodges, *Ph.D.;* D. M. Huber, *Ph.D.;* P. C. Pecknold, *Ph.D.;* M. A. Ross, *Ph.D.;* G. E. Shaner, *Ph.D.;* C. Y. Tsai, *Ph.D.;* E. B. Williams, *Ph.D.*

Associate Professors: K. D. Gibson, *Ph.D.;* S. G. Hallett, *Ph.D.;* G. S. Johal, *Ph.D.;* L. S. Loesch-Fries, *Ph.D.;* T. D. Mengiste, *Ph.D.;* M. A. Webb, *Ph.D.*

Assistant Professors: J. L. Beckerman, *Ph.D.;* N. C. Emery, *Ph.D.;* K. A. Wise, *Ph.D.;* M. J. Zanis, *Ph.D.*

Adjunct Professors: L. D. Dunkle, *Ph.D.;* S. B. Goodwin, *Ph.D.*

Entomology

J. S. Yaninek, Head of the Department

Professors: G. W. Bennett, *Ph.D.;* P. E. Dunn, *Ph.D.;* V. R. Ferris, *Ph.D.;* R. E. Foster, *Ph.D.;* G. J. Hunt, *Ph.D.;* L. J. Mason, *Ph.D.;* W. P. McCafferty, *Ph.D.;* L. L. Murdock, *Ph.D.;* C. Y. Oseto, *Ph.D.;* C. S. Sadof, *Ph.D.;* J. J. Stuart, *Ph.D.;* F. T. Turpin, *Ph.D.;* R. E. Williams, *Ph.D.;* J. S. Yaninek, *Ph.D.*

Professors Emeriti: D. B. Broersma, *Ph.D.;* C. R. Edwards, *Ph.D.;* W. J. Fischang, *Ph.D.;* R. L. Gallun, *Ph.D.;* H. F. Goonewardene, *Ph.D.;* J. F. MacDonald, *Ph.D.;* E. E. Ortman, *Ph.D.;* J. V. Osmun, *Ph.D.;* J. D. Paschke, *Ph.D.;* R. H. Ratcliffe, *Ph.D.;* R. E. Shade, *M.S.;* A. C. York, *Ph.D.*

Associate Professors: C. A. Hill, *Ph.D.;* J. J. Neal, *Ph.D.*

Assistant Professors: M. D. Ginzel, *Ph.D.;* J. D. Holland, *Ph.D.;* I. Kaplan, *Ph.D.;* C. H. Krupke, *Ph.D.;* D. S. Richmond, *Ph.D.*

Adjunct Associate Professors: J. E. Huesing, *Ph.D.;* B. M. Schneider, *Ph.D.;* R. H. Shukle, *Ph.D.;* C. E. Williams, *Ph.D.*

Adjunct Assistant Professor: B. J. Schemerhorn, *Ph.D.*

Research Assistant Professors: G. A. Buczkowski, *Ph.D.;* K. D. Saltzmann, *Ph.D.*

Food Science

S. S. Nielsen, Head of the Department

Named Professors: B. R. Hamaker, *Ph.D., Whistler Chair in the Department of Food Science;* P. E. Nelson, *Ph.D., Scholle Chair in Food Processing*

Professors: A. K. Bhunia, *Ph.D.;* R. Chandrasekaran, *Ph.D.;* L. F. Chen, *Ph.D.;* R. H. Linton, *Ph.D.;* M. T. Morgan, *Ph.D.;* S. S. Nielsen, *Ph.D.;* B. A. Watkins, *Ph.D.*

Professors Emeriti: J. N. BeMiller, *Ph.D.;* J. V. Chambers, *Ph.D.;* J. E. Hoff, *Ph.D.;* J. S. Marks, *Ph.D.;* R. P. Vine, *Ph.D.;* R. L. Whistler, *Ph.D.*

Associate Professors: B. M. Applegate, *Ph.D.;* C. E. Butzke, *Ph.D.;* C. M. Corvalan, *Ph.D.;* M. Ferruzzi, *Ph.D.;* K. M. Keener, *Ph.D.;* L. J. Mauer, *Ph.D.;* B. L. Reuhs, *Ph.D.*

Assistant Professors: T. M. Ballard, *Ph.D.;* K. Kim, *Ph.D.;* A. M. Liceaga, *Ph.D.;* D. E. Nivens, *Ph.D.;* F. San Martin, *Ph.D.;* Y. Yao, *Ph.D.*

Adjunct Professors: S. Arnott, *Ph.D.;* A. E. Denton, *Ph.D.;* J. B. Luchansky, *Ph.D.;* J. H. Nelson, *Ph.D.;* S. K. Patil, *Ph.D.;* G. D. Sadler, *Ph.D.;* M. L. Tamplin, *Ph.D.*

Adjunct Associate Professors: W. R. Aimutis, *Ph.D.;* W. P. Pruett Jr., *Ph.D.*

Adjunct Assistant Professors: A. G. Gehring, *Ph.D.;* Y. Gizaw, *Ph.D.;* D. M. Greer, *Ph.D.;* N. L. Rozzi, *Ph.D.*

Forestry and Natural Resources

R. K. Swihart, Head of the Department

Professors: J. W. Bickham, *Ph.D.;* P. B. Brown, *Ph.D.;* D. L. Cassens, *Ph.D.;* J. A. DeWoody, *Ph.D.;* C. A. Eckelman, *Ph.D.;* R. Gazo, *Ph.D.;* A. R. Gillespie, *Ph.D.;* W. L. Hoover, *Ph.D.;* P. E. Pope, *Ph.D.;* O. E. Rhodes Jr., *Ph.D.;* G. Shao, *Ph.D.;* R. K. Swihart, *Ph.D.;* H. P. Weeks Jr., *Ph.D.;* H. Zhang, *Ph.D.*

Professors Emeriti: T. W. Beers, *Ph.D.;* W. F. Beineke, *Ph.D.;* W. R. Byrnes, *Ph.D.;* J. C. Callahan, *Ph.D.;* W. R. Chaney, *Ph.D.;* W. L. Fix, *M.S.;* H. A. Holt, *Ph.D.;* M. O. Hunt, *Ph.D.;* D. M. Knudson, *Ph.D.;* H. C. Krauch, *M.S.;* D. C. Le Master, *Ph.D.;* J. W. Moser Jr., *Ph.D.;* R. E. Mumford, *Ph.D.;* J. T. O'Leary, *Ph.D.;* G. R. Parker, *Ph.D.;* R. H. Perkins, *Ph.D.;* A. Spacie, *Ph.D.;* S. K. Suddarth, *Ph.D.*

Associate Professors: J. B. Dunning Jr., *Ph.D.;* R. L. Farnsworth, *Ph.D.;* D. F. Jacobs, *Ph.D.;* R. Meilan, *Ph.D.;* W. L. Mills Jr., *Ph.D.;* B.C. Pijanowski, *Ph.D.;* M. S. Sepúlveda, *Ph.D., D.V.M.*

Assistant Professors: S. M. Amberg, *Ph.D.;* J. S. Dukes, *Ph.D.;* M. D. Ginzel, *Ph.D.;* R. R. Goforth, *Ph.D.;* E. Haviarova, *Ph.D.;* T. O. Höök, *Ph.D.;* M. A. Jenkins, *Ph.D.;* K. M. Nichols, *Ph.D.;* L. S. Prokopy, *Ph.D.;* M. R. Saunders, *Ph.D.;* R. N. Williams, *Ph.D.;* P. A. Zollner, *Ph.D.*

Adjunct Professors: B. C. Fischer, *Ph.D.;* C. H. Michler, *Ph.D.*

Adjunct Associate Professors: B. K. Miller, *Ph.D.;* M. A. Steele, *Ph.D.*

Adjunct Assistant Professors: E. E. Cleland, *Ph.D.;* T. L. DeVault, *Ph.D.;* Z. E. Lowe, *Ph.D.;* R. P. Overton, *Ph.D.;* P. M. Pijut, *Ph.D.;* K. E. Woeste, *Ph.D.*

Research Assistant Professor: H. I. Rowe, *Ph.D.*

Horticulture and Landscape Architecture

R. J. Joly, Head of the Department

Distinguished and Named Professors: R. A. Bressan, *Ph.D., Distinguished Professor of College of Agriculture;* P. M. Hasagawa, *Ph.D., Dr. Bruno C. Moser Distinguished Professor in Horticulture and Landscape Architecture;* J. Janick, *Ph.D., James Troop Distinguished Professor of Horticulture;* N. Doudareva, *Ph.D., Wickersham Chair of Excellence in Agricultural Research*

Professors: B. P. Bordelon, *Ph.D.;* M. N. Dana, *Ph.D.;* A. K. Handa, *Ph.D.;* M. A. Jenks, *Ph.D.;* R. J. Joly, *Ph.D.;* C. A. Mitchell, *Ph.D.;* A. S. Murphy, *Ph.D.;* K. G. Raghothama, *Ph.D.;* D. Rhodes, *Ph.D.;* D. E. Salt, *Ph.D.;* R. W. Sovinski, *M.L.A.;* S. C. Weller, *Ph.D.;* W. R. Woodson, *Ph.D.*

Professors Emeriti: E. N. Ashworth, *Ph.D.;* P. L. Carpenter, *Ph.D.;* P. E. DeTurk, *M.L.A.;* H. T. Erickson, *Ph.D.;* H. L. Flint, *Ph.D.;* L. Hafen, *Ph.D.;* P. A. Hammer, *Ph.D.;* R. A. Hayden, *Ph.D.;* D. J. Molnar, *M.L.A.;* B. C. Moser, *Ph.D.;* G. M. Pierceall, *M.L.A.;* G. E. Wilcox, *Ph.D.*

Associate Professors: B. L. Dahl, *M.S.;* J. L. Dennis, *Ph.D.;* P. M. Hirst, *Ph.D.;* K. S. Orvis, *Ph.D.;* D. M. Porterfield, *Ph.D.;* P. C. Siciliano Jr., *M.L.A.*

Assistant Professors: B. Dilkes, *Ph.D.;* A. E. Hildner, *M.L.A.;* M. J. Kirkwood, *M.D.E.S.;* R. G. Lopez, *Ph.D.;* M. V. Mickelbart, *Ph.D.;* W. A. Peer, *Ph.D.;* B. Schulz, *Ph.D.*

Adjunct Professors: P. M. Pijut, *Ph.D.;* G. E. Sanchez, *Ph.D.*

Clinical Professor: K. A. Schuette Jr., *B.S.A.*

Natural Resources and Environmental Science

A. P. Schwab, Program Director

Professors: L. S. Lee, *Ph.D.;* A. P. Schwab, *Ph.D.*

Youth Development and Agricultural Education

R. L. Tormoehlen, Head of the Department

Professors: N. J. Carroll, *Ph.D.;* L. L. Chezem, *J. D.;* J. L. Peters, *Ph.D.;* B. A. Talbert, *Ph.D.;* R. L. Tormoehlen, *Ph.D.*

Professors Emeriti: M. S. Kramer, *Ph.D.;* N. D. Long, *Ed.D.;* B. L. Peek, *M.S.;* R. M. Ritchie, *Ed.D.;* A. J. Rupel, *M.S.;* M. H. Stitsworth, *Ph.D.;* R. J. Warner, *M.S.*

Associate Professors: C. M. Brady, *Ph.D.;* N. A. Knobloch, *Ph.D.;* P. V. Morris, *Ph.D.;* K. S. Orvis, *Ph.D.;* M. Pilat, *Ph.D.;* M. A. Tucker, *Ph.D.*

Assistant Professors: A. M. Dotterer, *Ph.D.;* L. T. Esters, *Ph.D.*

Instructional Units

Agriculture
Agricultural and Biological Engineering
Agricultural Economics
Agronomy
Animal Sciences
Biochemistry
Botany and Plant Pathology
Entomology
Food Science
Forestry and Natural Resources
Horticulture and Landscape Architecture
Youth Development and Agricultural Education

Consumer and Family Sciences
Child Development and Family Studies
Consumer Sciences and Retailing
Foods and Nutrition
Hospitality and Tourism Management

Education
Curriculum and Instruction
Educational Studies

Engineering
Aeronautics and Astronautics
Agricultural and Biological Engineering
Biomedical Engineering
Chemical Engineering
Civil Engineering
Construction Engineering and Management
Electrical and Computer Engineering
Engineering Education
Industrial Engineering
Interdisciplinary Engineering
Materials Engineering
Mechanical Engineering
Nuclear Engineering

Health Sciences

Liberal Arts
Aerospace Studies
Anthropology
Bands
Communication
English
Foreign Languages and Literatures
General Studies
Health and Kinesiology
History
Interdisciplinary Studies
Military Science
Naval Science
Philosophy
Political Science
Psychological Sciences
Sociology
Speech, Language, and Hearing Sciences
Visual and Performing Arts

Management
Economics
Management

Nursing

Pharmacy and Pharmaceutical Sciences
Industrial and Physical Pharmacy
Medicinal Chemistry and Molecular Pharmacology
Pharmacy Practice

Science
Biological Sciences
Chemistry
Computer Science
Earth and Atmospheric Sciences
Mathematics
Physics
Statistics

Technology
Aviation Technology
Building Construction Management Technology
Computer Graphics Technology
Computer and Information Technology
Electrical and Computer Engineering Technology
Industrial Technology
Manufacturing Engineering Technology
Mechanical Engineering Technology
Organizational Leadership and Supervision

Veterinary Medicine
Basic Medical Sciences
Comparative Pathobiology
Veterinary Clinical Sciences
Veterinary Medicine

Index