



College of Agriculture

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About Purdue University

Serving people was Purdue University's founding principle as the Indiana link in the nationwide chain of land-grant colleges and universities. Purdue, which opened its doors on September 16, 1874, with a student body of 39 and a staff of six, has grown into a world-class educational system of 69,600 students and about 18,400 faculty and staff members across Indiana. The West Lafayette campus comprises 39,200 students and nearly 15,000 faculty and staff members.

Purdue graduates have been to the moon, to the highest levels of business and government, and to Sweden to receive the Nobel Prize. The roster of about 384,000 living alumni includes noted CEOs, agriculturalists, scientists, teachers, engineers, pharmacists, journalists, veterinarians, and athletes who have made notable contributions to our society.

Purdue has been a vital resource to the people of Indiana, the nation, and the world — from its land-grant foundation to its status today as a prominent land-, sea-, and space-grant university that champions its missions of learning, discovery, and engagement.

Making higher education available to the people was the plan in 1862 when President Lincoln signed the Morrill Act. That act gave public lands to any state that would use proceeds from the sale of the land to support a college that would teach agriculture and the mechanic arts.

Three years after passage of the land-grant act, the Indiana General Assembly voted to take advantage of the provisions. Competition among various areas of the state culminated in 1869 when the assembly accepted \$150,000 from Lafayette civic leader John Purdue, \$50,000 from Tippecanoe County, and 100 acres of land from local citizens. In appreciation, the institution was named Purdue University and was established in West Lafayette. The University officially opened for classes September 16, 1874.

Purdue quickly established prominence in agriculture and engineering, answering the immediate needs of the people. And it has since built solid reputations in veterinary medicine, technology, a range of sciences, pharmacy, nursing, management, liberal arts, health sciences, education, and consumer and family sciences.

The physical growth of campus also has been dramatic. Originally the campus consisted

of three buildings rising out of Indiana farmland. Today the main campus encompasses 160 major buildings. Nearly \$600 million worth of new construction and renovation is under way or scheduled to occur at Purdue in West Lafayette during the first seven years of the new millennium.

The Purdue system has expanded to include Purdue campuses at Fort Wayne, Hammond, and Westville, and degree programs at Indiana University-Purdue University Indianapolis and Indiana University-Purdue University Columbus. Purdue's College of Technology exists in 10 Indiana communities in addition to the West Lafayette campus.

The mission of answering the people's needs goes beyond educating productive graduate and undergraduate students. Purdue is a highly respected research institution, with research and sponsored program expenditures of over \$395.9 million in the 2004–05 fiscal year on the West Lafayette campus. In addition, the University offers its expertise to the state of Indiana in numerous ways, as well as to business and industry, retailers, and teachers.

Purdue's impact in Indiana is evident daily through its spectrum of learning, discovery, and engagement. The University has an annual impact of more than \$2.5 billion on Indiana's economy. Purdue's march toward preeminence has solid footing in the development of Discovery Park, where the University's talent and ideas are pacesetters in interdisciplinary, world-leading nanotechnology and biosciences research and discovery.

Outreach programs include the Purdue University Cooperative Extension Service, with sites in each of Indiana's 92 counties serving as a gateway to lifelong learning. The Office for Continuing Education and Conferences serves tens of thousands of adult learners annually through Purdue courses for personal and professional development offered on campus, off campus, and by distance education.

Purdue is also a cultural and recreational hub for people in northwestern Indiana. The Edward C. Elliott Hall of Music, one of the largest proscenium theaters in the world, houses 6,025 spectators for music, dance, theatre, and pop entertainment. Boilermaker fans crowd Ross-Ade Stadium, Mackey Arena, and the Intercollegiate Athletic Facility for Big Ten Conference football, basketball, and volleyball.

Purdue University ranks among the 25 largest universities in the United States. Its position of leadership and influence in teaching and research stems in large part from its worldwide acclaim in engineering, science, and technology, but its preeminence is bolstered by an exciting array of academic disciplines. On the West Lafayette campus, there are 370 majors/specializations to choose from within the following colleges and schools:

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 scientists, engineers, business representatives, producers, information specialists, and resource managers for professional careers in the world's food and natural resource systems. See www.agriculture.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, nutrition, health and fitness, tourism, 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 are also 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 Department of Engineering Education. Once they have completed that program, they choose from undergraduate curricula in aeronautics and astronautics, agricultural and biological, biomedical, chemical, civil, computer, construction engineering and management, electrical, food process, industrial, interdisciplinary, land surveying and geomatics, materials, mechanical, or nuclear engineering. Every school and department offers graduate degree programs. See www.engineering.purdue.edu.

School of Health Sciences

The school offers a variety of health-related study areas, including medical technology, medical physics, health physics, industrial hygiene, and related environmental and general health science programs. It also administers the prepharmacy, premedical, pre dental, and pre-allied health programs, including occupational and physical therapy and dental hygiene. Students completing the programs and gaining experience in the field may qualify for professional certification. 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 11 departments: audiology and speech sciences; communication; English; foreign languages and literatures; health and kinesiology; history; philosophy; political science; psychological sciences; sociology and anthropology; and visual and performing arts. Students can prepare themselves in more than 50 majors, including 11 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.) and for entry into graduate studies. 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.N. 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 advanced practice nurses. The Doctor of Nursing Practice (D.N.P.) delivers a curriculum from post-baccalaureate to the practice doctorate degree, with an emphasis on care of rural, underserved populations. 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 two prepharmacy years can be taken either at Purdue's School of Pharmacy or at another institution. 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 interdisciplinary science programs prepare students for immediate careers or advanced study. Pre-medical, pre dental, and preveterinary 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 22 specializations in the College of Technology prepare students to meet the technological needs of business, industry, and government. Technology students begin taking courses in their major as early as the 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, which graduated its first class in 1963, has assumed a leading position nationally and internationally in veterinary education. The school is one of only 28 in the United States that grant the Doctor of Veterinary Medicine 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 the only such program in the state of Indiana and one of only two AVMA programs administered by a school of veterinary medicine. See www.vet.purdue.edu/admissions.

The Graduate School

All programs of graduate study and research leading to advanced degrees are under the

Graduate School's jurisdiction. Programs of study lead to the degrees of Doctor of Philosophy, Doctor of Audiology, Doctor of Nursing Practice, Educational Specialist, Master of Arts, Master of Arts in Teaching, Master of Fine Arts, Master of Business Administration, Master of Science, and Master of Science in various pro-

fessional fields. More than 70 robust programs with research- and practice-oriented curricula are available in options that include the sciences, arts, engineering, agriculture, management, and humanities as well as exciting interdisciplinary programs. The Graduate School also offers several graduate-level, academic credit certificate programs. See www.gradschool.purdue.edu.

College of Agriculture Academic Programs

Mission

Undergraduate education in the College of Agriculture should stimulate students to learn, to use knowledge, to be productive citizens, and to lead satisfying lives. Education should stimulate lifelong learning, thereby enabling graduates to make informed and ethical choices that benefit society and the environment.

Graduates should be able to think critically and logically, apply knowledge, solve problems, and write and speak with clarity and purpose. They should learn the basic principles of the biological, physical, and mathematical sciences; the evolving technologies by which society advances; and the fundamental ideas of the cultural, economic, and political forces that help shape our world.

Students need a broad understanding of the food, agricultural, and natural resource system as well as the knowledge in a chosen field to provide a base from which to launch a rewarding career. To attain breadth beyond their disciplines, students should become familiar with cultures, languages, histories, geographies, and political systems of the United States and other countries. They should interact with people of other races, creeds, and cultural backgrounds to foster respect for other viewpoints. Students should develop an appreciation of the arts and literature.

Bachelor of Science Degrees

The College of Agriculture offers 41 plans of study leading to the degrees of Bachelor of Science (B.S.), Bachelor of Science in Forestry (B.S.F.), and Bachelor of Science in Landscape Architecture (B.S.L.A.). The College of Agriculture and the College of Engineering cooperate to offer two plans of study leading to the degree of Bachelor of Science in Agricultural and Biological Engineering (B.S. A.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 Biological 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
- 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
- Natural Resources and Environmental Science
- 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 Control
 Wildlife
 Wood Products Manufacturing Technology

Preprofessional Curricula

The College of Agriculture offers four pre-professional curricula for students planning to earn degrees in agricultural and 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 and biological engineering and food process engineering.

Preenvironmental 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 Professional Standards Board (IPSB) 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 Office of Professional Preparation and Licensure (OPPL) Web site at www.soe.purdue.edu/licensure. Students seeking additional clarification and guidance should consult with an academic counselor or faculty advisor.

A person who already holds a bachelor's degree may wish to complete a teacher education program as an "undergraduate 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 <http://admin2.education.purdue.edu/oppl/2002/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. To complete the Teacher Education Program at Purdue University, students must successfully pass through Gates A, B, and C in order to meet all requirements for licensing at Gate D. Students are required to attend the Teacher Education Orientation presented by the Office of Professional Preparation and Licensure (OPPL) in the College of Education during Block I or the CDFS 100 classes in order to fully understand the requirements and procedures. Information outlining the assessment of students in a teacher education program at Purdue is available online at <http://admin2.education.purdue.edu/oppl> or by con-

tacting OPPL at the Beering Hall address in the previous paragraph.

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

The Purdue College of Agriculture cooperates with 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.agriculture.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

All inquiries about admissions (whether you are entering from high school, transferring from another institution, or re-entering after being out of school) should be addressed to: Office of Admissions; Purdue University; Schleman Hall; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; admissions@purdue.edu; (765) 494-1776.

Your first inquiry concerning admission should include (1) the amount of education you have completed; (2) your plans for further education, indicating your area of interest; and (3) the approximate date of your entrance to Purdue.

When you are entering directly from high school, the Office of Admissions suggests that you file your application for admission early in your senior year. Transfer students should apply as early as possible.

Campus Visits

A visit to the campus and an interview with an admissions counselor will help you determine which educational programs at Purdue are in keeping with your educational background and your future career interests. Such a campus visit is especially appropriate during your junior year in high school.

The Office of Admissions is open each weekday from 8:00 a.m. to 5:00 p.m. No appointment is necessary; however, if you would like a tour of the campus, contact the Office of Admissions before your visit.

Students interested in Purdue have a variety of opportunities to visit the campus. Some programs, such as Fall Preview Days and Introducing Purdue, offer more formal agendas that include admissions presentations, school and program sessions, and campus tours. Prospective students and their families also can make individual visits; the Office of Admissions offers multiple visit sessions on a daily basis, Monday through Friday, including walking tours of campus. Students planning a visit to campus should first contact the Office of Admissions or visit the Admissions Web site — www.purdue.edu/admissions/undergrad — for further information.

Core 40 — Indiana Students

Purdue University applauds the state's efforts to strengthen Indiana's high school students' academic preparation and encourages all students to complete the Core 40 requirements. In addition to considering high school courses, Purdue will continue to use other factors such as grade point average, class rank, trends in achievement, honors courses, and test scores when reviewing applications for admissions. We will evaluate applicants on an individual basis and in relation to their requested majors. Program limitations also will continue to be a factor in admission to certain majors.

Admissions Criteria

Your admission as a new student into the College of Agriculture at Purdue is determined by a holistic review that evaluates rank in class, test scores, ability to be successful, grade average in college preparatory subjects, grades in

courses related to the degree objective, trends in achievement, completion of minimum high school subject matter expectations (see table), the strength of the college preparatory program, personal attributes, and information provided by your high school counselor. All applicants who have not completed a full year of college work are required to provide SAT or ACT scores (including the writing sections of these tests). Students are encouraged to take either the SAT or ACT in the spring of their junior year. All applicants must graduate high school or have a GED.

Subjects	Minimum Semester Expectations
English	8
Academic math*	6
Laboratory science†	4
Foreign language	4

* Includes algebra, geometry, trigonometry, calculus, etc.

† Includes biology, chemistry, physics, agricultural sciences, earth/space sciences, physiology/anatomy, etc.

In satisfying the entrance requirements in laboratory science, it is advisable for at least one semester to be in chemistry. If it is possible for you to exceed the above requirements, biology and physics are recommended in addition to chemistry.

Because this catalog is used for two to three years, you should refer to www.purdue.edu/admissions/undergrad for the most current and accurate information about admission to the College of Agriculture.

Advance Deposit on Fees

If you are a new student admitted for the fall semester, you must make a nonrefundable advance deposit of \$100. This deposit is to reserve a place for you on the new student roster. Students admitted on or before April 10 must submit the deposit by May 1. Those admitted after April 10 must submit the deposit within three weeks (21 days) after the date of the offer of admission.

If you receive an offer of admission but fail to make the required deposit of \$100 within the time allotted, you automatically forfeit your right to a place on the new student roster.

The \$100 advance deposit will be applied to your first semester fees and is not associated with your University housing application or contract.

Early Enrollment for Superior Students

If you are a high school student with a highly superior scholastic record during the first three years of high school, you may qualify for admission to Purdue without high school graduation.

The regular entrance requirements are supplemented by certain objective measurements of your qualification to advance to the university level. In this way, the University tries to recognize and provide for individual rates of learning and achievement.

As a nongraduate of high school, you will be considered for admission if you (1) have earned 12 or more credits toward graduation; (2) have a highly superior school record; (3) are strongly recommended by your principal; (4) have the approval of your parents for college entrance without high school graduation; (5) qualify by your performance on prescribed admissions tests; and (6) are approved by the University Admissions Committee.

Purdue cannot guarantee high school diplomas under this arrangement, but it cooperates with whatever arrangement the state or local school system may have for awarding a high school diploma to a successful participant in this plan.

Admission with Advanced Standing

On the basis of your CEEB Advanced Placement Examination, Purdue advanced credit examination, or high school record, you, as a first-year student, may receive advanced credit and/or advanced placement.

Transfer Students

If you are transferring from another college or university, you must comply with the following procedures:

1. Submit an official undergraduate application for admission.
2. Forward official transcripts of work done at institutions previously attended (both high school and college). A separate transcript must be provided by each institution, regardless of whether credit is requested.

To be considered for admission, transfer students should apply as soon as possible for the term they wish to enter. To be admitted, students must have the necessary grade point average at the time they apply (and any required college

coursework) and meet high school subject matter requirements.

Because this catalog is used for two to three years, you should refer to www.purdue.edu/admissions/undergrad for the most current and accurate information about admission to the College of Agriculture.

Transfer (or Advanced) Credit

Credit for courses at Purdue University will be given for work of equivalent character and amount successfully completed at another accredited college. Advanced standing will be determined on the basis of these credits. Advanced credit will be regarded as provisional and may be withdrawn by the director of admissions upon recommendation of the head of the department concerned if dependent work is not satisfactorily completed.

Purdue University is a supporter of and a participant in the Indiana Core Transfer Library (CTL), a growing list of courses that will transfer from one public Indiana institution to another. As the Core Transfer Library is developed, information will be available at www.chestate.in.us.

When credit earned at another college or university is transferred to Purdue and accepted toward advanced standing, the credit is converted into terms of Purdue courses and applied to the program of study. It remains for you, the student, to complete the program, and your schedule of courses each term will be adjusted accordingly. It does not follow that your classification at Purdue or the time necessary for completion of the required work for a degree will be in line with what was expected at the previous institution. Grades are not transferred; only credits in courses are recorded.

Students participating in college-credit courses taught concurrently for high school and college credit during the regular school day by local high school teachers must validate the credit by submitting satisfactory results on the College Board Advanced Placement Examination or the Purdue advanced credit examination, as determined by the subject department. The determination of use of transfer credit in part or in full to satisfy graduation requirements is the responsibility of the school head or his or her designated representative, in accordance with the regulations of the University faculty.

All credentials are submitted with the understanding that they become the property of Purdue University.

Early Registration — Day on Campus

The Student Access, Transition and Success Programs (SATS) and the Office of Admissions invite you to campus for one day of early registration during the summer before your first semester as a new student. This day is set aside for you to meet with your academic counselor and to select your first-semester classes. The University then will proceed with the registration process and mail you a fee statement and your class schedule.

Student Orientation and Support Programs

Student Access, Transition and Success Programs (SATS) is responsible for the coordination of initiatives that help students prepare for, transition into, and succeed 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 for new, beginning students and includes a variety of activities designed to help them 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 the students at the appropriate times.

SATS programs include Day on Campus, Learning Communities, Orientation Programs (such as Boiler Gold Rush and Welcome Programs), Parent and Family Programs, the Purdue Opportunity Awards program, the Purdue HelpDesk, 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 G77; 128 Memorial Mall Drive; West Lafayette, IN 47907.

Nondegree Students

If you are an adult living near one of Purdue's campuses and you want to take a course at the University without seeking a degree or following a regular plan of study, you can apply for admission as a nondegree student. You must show that you have the background and course prerequisites necessary for the course or courses in which you are interested. The Office of Admissions will advise you on admissions procedures.

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.

Time of Entrance

Purdue University offers instruction during two semesters and summer session. You can begin most programs of study with any semester or during the summer. The semesters start in August and January, and the summer modules begin in May, June, and July. Students may begin the following programs only at the times stated: flight, nursing, and the Undergraduate Studies Program, fall; the specific veterinary technology program you are interested in will determine when you may begin your studies.

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.

The Purdue Statewide Academic System

Admission to Another Purdue Campus

Purdue's educational system provides students access to a full complement of the University's faculty, resources, and academic programs. Whether you're enrolled at Calumet, Fort Wayne, North Central, or West Lafayette, you can pursue a degree from Purdue University and fulfill your career aspirations.

As one of the nation's top research institutions, Purdue is recognized around the world for the quality of its programs and its graduates. When you pursue your goals at a Purdue campus, you'll earn your share of that reputation.

You'll enjoy all the challenges as well as the benefits and rewards associated with a preeminent university. Purdue University's quality is available across the state, and the primary goal of each campus is to help each student excel through discovery, learning, and engagement.

For information about what is offered at each Purdue University campus, use the following contact list:

Calumet	www.calumet.purdue.edu adms@calumet.purdue.edu
Fort Wayne	www.ipfw.edu ASK@ipfw.edu
North Central	www.pnc.edu admissions@pnc.edu
West Lafayette	www.purdue.edu admissions@purdue.edu

There also are Purdue programs at Indiana University-Purdue University Indianapolis. Go to www.iupui.edu for more information.

Admission to the College of Technology — Statewide

The College of Technology resides in 10 Indiana communities in addition to the West Lafayette campus. A unique partnership of education, business, industry, and government, these community-based locations feature quality curriculum requirements, faculty who are as highly qualified as their West Lafayette campus peers, low student-to-faculty ratios, and the opportunity to earn a degree from Purdue University.

Technology programs at all locations emphasize hands-on, real-world applications to engineering principles. Students learn marketable skills to meet the defined needs of Indiana business and industry. Purdue Technology graduates are well prepared for immediate employment and enjoy one of the University's highest job-placement rates and some of the highest starting salaries for undergraduate majors.

In addition to academics, these College of Technology locations offer opportunities to get involved in on-campus and community activities. They also provide a full range of student services to ensure a rewarding college experience and future success.

The College of Technology Web site is www.purdue.edu/technology. For information about what is offered at each location, contact the Office of Admissions on the West Lafayette campus at admissions@purdue.edu or the location that interests you. The following list provides contact information for each location.

West Lafayette

Niaz Latif
(765) 494-1101
latif@purdue.edu

Anderson

319 Cottage Avenue
Anderson, IN 46012-3404
Phone: (765) 641-4551
E-mail: techanderson@purdue.edu

Columbus

4555 Central Avenue, Suite 1200
Columbus, IN 47203-1892
Phone: (812) 314-8526
E-mail: techcolumbus@purdue.edu

Greensburg

422 East Central Avenue, Suite 2
Greensburg, IN 47240-1834
Phone: (812) 622-8686

Indianapolis

2175 South Hoffman Road
Indianapolis, IN 46241-3650
Phone: (317) 484-1824
E-mail: techindianapolis@purdue.edu

Kokomo

2300 South Washington Street
Kokomo, IN 46904-9003
Phone: (765) 455-9339
E-mail: techkokomo@purdue.edu

Lafayette

5500 State Road 38 East, AD 2900
Lafayette, IN 47903-9405
Phone: (765) 496-6886
E-mail: techlafayette@purdue.edu

Muncie

Ball State University AT 223
Muncie, IN 47306-0256
Phone: (765) 285-5554

New Albany

4201 Grant Line Road
New Albany, IN 47150-2158
Phone: (812) 941-2353
E-mail: technewalbany@purdue.edu

Richmond

Indiana University
2325 Chester Boulevard
Richmond, IN 47374-1220

Phone: (765) 973-8228
E-mail: techrichmond@purdue.edu

South Bend

1733 Northside Boulevard
South Bend, IN 46634-7111
Phone: (574) 520-4180
E-mail: techsouthbend@purdue.edu

Readmission

Students who are dropped from Purdue University for academic deficiency must be out of the University for at least one semester (not including summer session) and must apply for readmission through the Office of the Dean of Students. There are deadlines for submitting an application with a \$100 fee, and for removing all encumbrances. A student may strengthen his or her application by submitting evidence of successful coursework from another institution. Information about the readmission process is available from the Office of the Dean of Students; Schleman Hall; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; (765) 494-1747.

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 disabled or Vietnam era 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 Vietnam era veterans through its affirmative action program.

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 2006-07 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.

Beginning in the Fall 2006 Semester, students who enroll for a new degree-seeking program will be assessed a repair and rehabilitation fee. (The fee is retroactive for students who were enrolled as new degree-seeking students in Summer 2006.) This 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.

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.

**2006–07 Estimated Costs West Lafayette Campus
(Fall and Spring Semesters)**

Items	Indiana Resident	Nonresident
Tuition/Fees	\$6,846* †	\$21,016* †
Room/Board	7,140	7,140
Books/Supplies	990	990
Travel	270	420
Miscellaneous	1,650	1,650
Total	\$16,896	\$31,216

** First-time students enrolled at the West Lafayette campus beginning in the Fall 2002 Semester and thereafter pay these fees. Undergraduate, graduate, and professional students who were enrolled as degree-seeking students in the Spring 2002 Semester on the West Lafayette campus may be eligible for a lower fee. To maintain eligibility for a lower fee, students must be continuously enrolled (Fall and Spring semesters); eligible students will pay a lower fee until the date of attainment of one degree or until the Fall 2007 Semester, whichever comes first. Beginning in the Fall 2006 Semester, students who enroll for a new degree-seeking program will be assessed a campus repair and rehabilitation fee. That fee, as approved by the Board of Trustees, is also retroactive for students who enrolled as new degree-seeking students in Summer 2006.*

† 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, \$600; Management, \$936; 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 \$50 per semester.

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

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

Purdue University recognizes that not all students and their parents can afford to finance a college education entirely from their income and assets. To ensure that all students have an opportunity to obtain a college education regardless of their financial circumstances, the University, through the Division of Financial Aid, administers a four-fold 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. Information regarding the GED is available through any public high school or any state department of education/public instruction.

Most types of aid are based upon financial need and satisfactory academic progress. To be considered for all types of financial aid, you must submit a Free Application for Federal Student Aid (FAFSA). This form should be submitted online at www.fafsa.ed.gov or can be obtained from the Division of Financial Aid; Schleman Hall of Student Services, Room 305; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050.

You should apply early for Purdue University financial aid. Eligible FAFSAs postmarked by March 1 will receive preference in the awarding of aid.

You are welcome to visit the campus to discuss not only family budgeting in order to meet college expenses, but also 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. Phone counselors are available from 8:00 a.m. to 5:00 p.m. Monday through Friday at (765) 494-0998. Computer access to your aid status is available at www.ssinfo.purdue.edu.

Resident Assistants

University Residences has a plan whereby graduate and undergraduate students who are at least 21 years of age by the end of their first semester of employment with University Residences 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, or religion. 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 14 University Residences, a fraternity or sorority house, cooperative housing, or in a privately operated facility within the local community.

Apply for housing as soon as possible — whether or not you've made a final decision about enrolling at Purdue. University Residences begins accepting applications from admitted students in September for the following academic year.

Housing assignments generally are made in the order in which applications and \$75 housing deposits are received, after housing assignments are made for certain groups such as Learning Communities and National Merit finalists. Therefore, you should apply for housing as soon as possible to improve your chance of assignment to a residence of your higher preference. You will have the opportunity to indicate your housing preferences and a specific roommate request at the time you receive your housing contract mailing.

Apply online at www.housing.purdue.edu to expedite your application. If you don't have Internet access, use the paper application included with the housing brochure in your initial admission packet. With your application, you will be required to submit a \$75 deposit. If you do decide to live on campus, this deposit will be credited to your first housing bill; if you do not, the deposit is refundable per the following schedule.

March 1 is the preferential housing application deadline. Because the University does not guarantee on-campus housing, it is important that students meet this deadline, although applying earlier is recommended. Students who apply for housing after the March 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 for housing by March 1 receive a housing contract mailing by April 1, which will be due to be returned by mid-April. When you receive your housing contract mailing, you will be prompted 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, each of you must rank your residence preferences the same and request each other as a roommate.

New students who notify University Residences in writing of their choice to cancel their housing application will receive a refund of the housing deposit as follows:

Fall semester or summer session, cancellation received:

- Before May 1, \$75 refund
- Between May 1 and May 31, \$25 refund
- On or after June 1, no refund

Spring semester, cancellation received:

- Before December 1, \$25 refund
- On or after December 1, no refund

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 11,100 single undergraduate men and women.

The all-male residences include Cary Quadrangle, providing accommodations for 1,166 students, and Tarkington and Wiley Halls, each providing space for about 700 students.

Six University Residences — Owen, McCutcheon, Harrison, Shreve, Earhart, and Hillenbrand halls — 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, Shealy, Wood, Warren, and Vawter halls comprise the all-women's residences and are referred to as Windsor Halls. Windsor Halls provide accommodations for 595 students.

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

As a student, you may choose from three plans consisting of 10, 15, or 20 meal swipes a week, as suits your lifestyle. University Residences offers students who are sophomore 3 and above the Black Meal Plan, consisting of a block of 210 meals, and the Gold Meal Plan, consisting of 300 meals. With these plans, 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 each University Residences hall. If you bring a personal computer, you may use the Residences' optional Ethernet connections or data-over-voice service to access the University computing network directly from your room.

Room and board rates in 2006–07 vary from \$5,528 to \$8,624, depending on your chosen meal plan option, residence, and room size.

Approximately 700 spaces in Hawkins Hall are reserved for assignment to older undergraduate students. Hawkins Hall residents are not required to purchase a meal plan. Accommodations in Hawkins Hall are on a room-only basis. The cost for a room in 2006–07 ranges from \$320 to \$585 a month depending on the type of room selected; that includes local telephone service with voicemail and call waiting.

More than 1,000 spaces for single undergraduate students are available in Hilltop Apartments. The apartments house two, three, or four 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 non-board option. The room and board rate for 2006–07 in the apartments ranges from \$6,172 to \$9,466 a year.

(Rates quoted are subject to change as approved by the Board of Trustees and undoubt-

edly will be somewhat higher during the 2007–08 period of this publication.)

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

Accommodations for Married Students/Families

At Purdue Village, there are 1,000 University Residences-operated apartments located within a one-mile walking distance of the main campus. The apartments are unfurnished and equipped with a stove and refrigerator. There are one-bedroom and two-bedroom apartments, with the two-bedroom apartments having washers and dryers.

One-bedroom apartment costs range from \$520 to \$535 a month. Two-bedroom units range from \$640 to \$655 a month. Your rent payment covers all utilities, including local telephone service and Boiler TV (cable). These rates are effective during the 2006–07 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.

For more information on Purdue Village, visit www.housing.purdue.edu, call (800) 440-2140, or fax (800) 440-2141.

Cooperatives

Cooperative houses also provide housing for students. These houses are large residences that are owned and operated by 20 to 50 students.

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.

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; Schleman Hall, Room 250; 475 Stadium Mall Drive; West Lafayette, IN 47907-2050; or call (765) 494-1231. Students are expected to complete and return application information by February 1 or earlier for membership the following fall semester.

Additional information is available at www.purduecooperatives.org.

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.

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, Counsel-

ing 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/adpro. 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.

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.

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.education.purdue.edu/trc.

For Further Information

General Information. The *General Information* bulletin will give you further details about admission, fees, expenses, financial aid, registration, living accommodations, student activities, student services, requirements for

graduation, transfer students, ROTC, and other areas of student interest.

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

Graduation Rates. Graduation rates for the West Lafayette campus are available by contacting the Office of Management Enrollment, 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.

Alcohol Policy. Purdue students are subject to Indiana law, which prohibits consumption or possession of alcoholic beverages by anyone under 21 years of age. The University does not permit alcohol to be brought onto Purdue property, with certain exceptions, by any person regardless of age. Fraternity and sorority houses and student cooperative housing units are con-

sidered off-campus housing and are permitted to have alcoholic beverages, but they must observe specific University guidelines and state law.

The University does not have the responsibility or the authority to control off-campus student drinking, but it does attempt to give students the opportunity to make informed and mature decisions about alcohol use. A variety of educational and counseling programs are offered to help students deal with all aspects of alcohol and drug use, from peer pressure to dependency.

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.adpc.purdue.edu/PhysFac/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.

Intellectual Property. All students are subject to the University policy on intellectual property, Executive Memorandum B-10, which can be found at www.purdue.edu/oop/policies/pages/teach_res_outreach/b_10.html.

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 faculty, staff, and students.

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, and provide services including career accounts, e-mail, calendaring, directories, and database administration.

In addition to laboratory facilities, instructional services include:

1. The WebCT course management system.
2. Technology in the Classroom (TIC) sites.
3. Help in preparing multimedia materials to enhance instruction.
4. Grants for innovative instructional projects using information technology.

5. The Digital Learning Collaboratory, a joint project with the Purdue University Libraries.
6. The Adaptive Programs lab for those with special needs.
7. Web-based access to many software applications (DACS).

Distributed computing and grid computing are basic elements in the computing program. An IBM SP, a Regatta, and Linux clusters provide supercomputing power for intensive computational needs ranging from simulations and modeling to computational chemistry.

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 Indiana University and Purdue into a virtual machine room with teraflop capabilities. Parallel programming services and archival storage systems are available to researchers.

The Envision Center for Data Perceptualization provides visualization computing and multimedia production services as well as ani-

mation and rendering capabilities, computer-aided design, large-scale data handling, haptic interaction capabilities, and virtual environment creation. Within the center there is an access grid node linking the University to several hundred research sites around the globe, plus portable versions of the node to facilitate videostreaming. Separate video production and audio-visual duplication facilities are available as are satellite uplink and downlink capabilities and broadcast and network services.

Policies and best practices provide the foundation for a security system that also includes:

1. Firewall protection.
2. Free anti-virus applications.
3. Spam filtering.
4. Authentication and authorization procedures.
5. Vulnerability scanning.
6. Forensics.

Telecommunications services provided by ITaP range from basic phone services for campus offices and residences to wireless connectivity in areas throughout the campus. ITaP supports the infrastructure that links campus buildings by

optical fiber and provides commodity Internet to residences and offices as well as connectivity to Internet 2 for researchers.

ITaP negotiates contracts 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 for software media sold on campus. The hardware discounts also are available to Purdue alumni.

To help University personnel stay up to date on the rapidly changing information technology field, courses and one-on-one consulting are available on every aspect of computing and telecommunications, including selecting phone systems, 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 G068, 128 Memorial Mall, West Lafayette, IN 47907-2034.

Libraries

The collections and services of the Purdue University Libraries are an important resource for your educational experience.

The University Libraries system on the West Lafayette campus includes 13 subject-oriented libraries and the Hicks Undergraduate Library. The Libraries provide a print collection of nearly 2,500,000 volumes and more than 3,100,000 microforms of older scholarly materials in addition to many current scientific and technical reports. Approximately 21,000 serial titles are received, including periodicals and serial publications of societies, institutions, and the federal and state governments. Federal government publications and patents are received on a depository basis. The Libraries also offer more than 7,000 electronic information sources. The Libraries Web site at www.lib.purdue.edu is the gateway to information and services.

Local library resources are supplemented by the four million items of research materials held by the Center for Research Libraries in Chicago, including 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 in the HSSE Library.

The Digital Learning Collaboratory (DLC) is located in the 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.

Librarians and a knowledgeable reference staff are readily available to assist students with their information retrieval needs.

Students in the sciences will find most of the materials needed for study and research in one or more of the libraries specializing in the physical and life sciences. Reference and instruction services are available in each of these libraries.

The Life Sciences Library, located in Lilly Hall of Life Sciences, has the collections most

closely related to the programs of the College of Agriculture and the Department of Biological Sciences. The library has about 84,000 bound volumes and more than 970 current subscriptions, specifically on the topics of agriculture, biology, agricultural and biological engineering, agronomy, animal sciences, biochemistry and molecular biology, botany and plant pathology,

entomology, food science and technology, forestry and natural resources, horticulture, genetics, and environment. Older volumes are held in the University Libraries' on-campus repository.

Numerous electronic resources also support study and research in these fields. Librarians and reference staff in each library assist users in retrieving information in all formats.

Study Abroad

Through Programs for Study Abroad, you gain international experience, develop maturity and independence, and increase your knowledge of other cultures. These traits help prepare you for a successful career after graduation from Purdue.

With over 200 programs in more than 45 countries, you — like all Purdue students — have the opportunity to participate in study, work, or internships abroad. You can take courses in your major or minor, or earn general elective credits. Some programs are designed for students in specific areas of study, while others are open to all Purdue students regardless of major. Academic credit transfers back to Purdue, allowing you to fit study abroad into your four-year plan. You remain enrolled as a regular Purdue student while on study abroad programs, and you therefore are eligible for Purdue University scholarships and financial aid, which may be applied to program fees.

Programs for Study Abroad awards a limited number of scholarships to students who have been

approved for study abroad based on need and merit. In addition, a variety of other scholarships also are available. Information about all scholarships can be found on the Study Abroad Web site.

Study Abroad programs vary by discipline, foreign language ability, and length of stay — from one week to one year — making study abroad accessible for all students. You can apply online at www.studyabroad.purdue.edu.

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 at www.agriculture.purdue.edu/ipiastudyabroad.

Abbreviations

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

A&D—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

BIOL—Biological Sciences

BMS—Basic Medical Sciences

BTNY—Botany and Plant Pathology

CE—Civil Engineering

CHE—Chemical Engineering

CHM—Chemistry

COM—Communication

CS—Computer Sciences

EAS—Earth and Atmospheric Sciences

ECE—Electrical and Computer Engineering

ECON—Economics

EDCI—Educational Curriculum and Instruction

EDPS—Educational Psychoeducational Studies

EDST—Educational Leadership and Cultural Foundations

ENGL—English

ENGR—First-Year Engineering

ENTM—Entomology

F&N—Foods and Nutrition

FNR—Forestry and Natural Resources

FS—Food Science

HIST—History

HK—Health and Kinesiology
HORT—Horticulture
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
SOC—Sociology
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 and Biological Engineering (B.S. A.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.B.E.	B.S.F.	B.S.L.A.
<i>Semester Credits</i>				
College of Agriculture Orientation				
Introduction to the College of Agriculture and Purdue University	1	1	1	1
Mathematics and Sciences				
Biological Sciences	8	8	8	8
General Chemistry	6	8	6	0
Calculus	3	16	3	0
Statistics (Calculus may be used in B.S.L.A.)	3	0	3	3
Earth and Atmospheric Sciences	0	0	0	3
Additional Mathematics and Sciences	8	9	8	6
Minimum Total	28	41	28	20
Written and Oral Communication				
ENGL 106 (First-Year Composition)	4	4	4	4
COM 114 (Fundamentals of Speech Communication)	3	3	3	3
Additional Written and Oral Communication	3	3	3	3
Minimum Total	10	10	10	10
Social Sciences and Humanities				
Economics	3	3	3	3
Other Social Sciences	3–9	3–6	3–9	3–9
Humanities	6–12	6–9	6–12	9–15
Minimum Total	18	15	18	21
Departmental Requirements and Electives	73	63	81	80

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 and 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 100; ENGL 100, 109; ENGR 191, 192, 193; MA 111, 123, 133, 134, 151, 152, 153, 154, 159; PHYS 149; STAT 113, 114; and all General Studies courses.

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)

- (4) **BIOL 110** (Fundamentals of Biology I) **and**
- (4) **BIOL 111** (Fundamentals of Biology II)
- (4) **BIOL 110** (Fundamentals of Biology I) **and**
- (4) **BIOL 203** (Human Anatomy and Physiology) **and**
- (4) **BIOL 204** (Human Anatomy and Physiology)
- (4) **BIOL 111** (Fundamentals of Biology II) **and**
- (4) **BIOL 203** (Human Anatomy and Physiology) **and**
- (4) **BIOL 204** (Human Anatomy and Physiology)
- (2) **BIOL 121** (Biology I: Diversity, Ecology, and Behavior) **and**
- (3) **BIOL 131** (Biology II: Development, Structure, and Function of Organisms) **and**

- (3) **BIOL 231** (Biology III: Cell Structure and Function)
- (2) **BIOL 121** (Biology I: Diversity, Ecology, and Behavior) **and**
- (3) **BIOL 131** (Biology II: Development, Structure, and Function of Organisms) **and**
- (3) **BIOL 295E** (Biology of the Living Cell)
- (4) **BTNY 210** (Introduction to Plant Science) **and**
- (4) **BIOL 110** (Fundamentals of Biology I)
- (4) **BTNY 210** (Introduction to Plant Science) **and**
- (4) **BIOL 111** (Fundamentals of Biology II)
- (4) **BTNY 210** (Introduction to Plant Science) **and**
- (4) **BIOL 203** (Human Anatomy and Physiology) **and**
- (4) **BIOL 204** (Human Anatomy and Physiology)
- (4) **BTNY 210** (Introduction to Plant Science) **and**
- (4) **HORT 301** (Plant Physiology)

To fulfill the biological sciences core requirement, all students must complete at least two hours of laboratory credit in biological sciences.

General Chemistry (6 credits)

- (3) **CHM 111** (General Chemistry) **and**
- (3) **CHM 112** (General Chemistry)
- (4) **CHM 115** (General Chemistry) **and**
- (4) **CHM 116** (General Chemistry)

Calculus (3 credits)

- (5) **MA 161** (Plane Analytic Geometry and Calculus I)
- (4) **MA 165** (Analytic Geometry and Calculus I)
- (3) **MA 220** (Introduction to Calculus)
- (3) **MA 223** (Introductory Analysis I)

Statistics (3 credits)

- (3) **STAT 301** (Elementary Statistical Methods)
- (3) **STAT 501** (Experimental Statistics I)
- (3) **STAT 503** (Statistical Methods for Biology)

Additional Mathematics or Sciences (8 credits)

- (3) **AGEC 352** (Quantitative Techniques for Firm Decision Making)
- (3) **AGEC 451** (Applied Econometrics)
- (3) **AGRY 255** (Soil Science)
- (3) **AGRY 270** (Forest Soils)
- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (3) **AGRY 335** (Weather and Climate)
- (3) **ANSC 221** (Principles of Animal Nutrition)
- (4) **ANSC 320** (Physiology of Domestic Animals)
- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (4) **BIOL 221** (Introduction to Microbiology)
- (3) **BIOL 231** (Biology III: Cell Structure and Function)
- (2) **BIOL 232** (Laboratory in Biology III: Cell Structure and Function)

- (3) **BIOL 241** (Biology IV: Genetics and Molecular Biology)
- (2) **BIOL 242** (Laboratory in Biology IV: Genetics and Molecular Biology)
- (2) **BIOL 286** (Introduction to Ecology)
- (2) **BIOL 287** (Organisms and Populations)
- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **BTNY 211** (Plants and the Environment)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) **BTNY 305** (Fundamentals of Plant Classification)
- (4) **BTNY 316** (Plant Anatomy)
- (4) **CHM 224** (Introductory Quantitative Analysis)
- (3) **CHM 255** (Organic Chemistry)
- (1) **CHM 255L** (Organic Chemistry Laboratory)
- (3) **CHM 256** (Organic Chemistry)
- (1) **CHM 256L** (Organic Chemistry Laboratory)
- (4) **CHM 257** (Organic Chemistry)
- (1) **CHM 257L** (Organic Chemistry Laboratory)
- (3) **CHM 261** (Organic Chemistry)
- (3) **CHM 262** (Organic Chemistry)
- (1) **CHM 263** (Organic Chemistry Laboratory)
- (1) **CHM 264** (Organic Chemistry Laboratory)
- (2) **C S 152** (FORTRAN Programming for Engineers)
- (2) **C S 156** (C Programming for Engineers)
- (4) **C S 180** (Programming I)
- (3) **EAS 111** (Physical Geology)
- (4) **EAS 112** (Historical Geology)
- (3) **EAS 221** (Survey of Atmospheric Science)
- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (3) **ENTM 210** (Introduction to Insect Behavior)
- (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
- (4) **HORT 301** (Plant Physiology)
- (3) **HORT 350** (Biotechnology in Agriculture)
- (5) **MA 162** (Plane Analytic Geometry and Calculus II)
- (4) **MA 166** (Analytic Geometry and Calculus II)
- (3) **MA 224** (Introductory Analysis II)
- (4) **MA 261** (Multivariate Calculus)
- (3) **NRES 255** (Soil Science)
- (4) **PHYS 152** (Mechanics)
- (3) **PHYS 214** (The Nature of Physics)
- (4) **PHYS 220** (General Physics)
- (4) **PHYS 221** (General Physics)
- (3) **PHYS 241** (Electricity and Optics)
- (3) **STAT 502** (Experimental Statistics II)
- (3) **STAT 511** (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 114** (Fundamentals of Speech Communication)
- (4) **ENGL 106** (First-Year Composition)
- (3) From American Sign Language (ASL), Communication (COM 200+), English (ENGL 200+), (3) **AGR 201** (Communicating Across Culture), or (3) **YDAE 440** (Methods of Teaching Agricultural Education)

Option 2 (Beginning Freshmen – Advanced Credentials)

- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **ENGL 108** (Accelerated First-Year Composition)*
- (3) From American Sign Language (ASL), Communication (COM 200+), English (ENGL 200+), (3) **AGR 201** (Communicating Across Culture), or (3) **YDAE 440** (Methods of Teaching Agricultural Education)

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

- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Transfer credits in freshman English composition, excluding courses equivalent or similar to ENGL 100.
- (6) From American Sign Language (ASL), Communication (COM 200+), English (ENGL 200+), (3) **AGR 201** (Communicating Across Culture), or (3) **YDAE 440** (Methods of Teaching Agricultural Education)

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

- (3) **COM 114** (Fundamentals of Speech Communication)

* Students who earn an "A" or "B" in ENGL 108 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 108 must complete six credits from American Sign Language (ASL), Communication (COM 200+), English (ENGL 200+), (3) AGR 201 (Communicating Across Culture), or (3) YDAE 440 (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.

- (6) Transfer credits in freshmen English composition, excluding courses equivalent or similar to ENGL 100.
- (3) From American Sign Language (ASL), Communication (COM 200+), English (ENGL 200+), (3) **AGR 201** (Communicating Across Culture), or (3) **YDAE 440** (Methods of Teaching Agricultural Education)

Students enrolled in curricula leading to the Bachelor of Science in Agricultural and 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 300+ level.

Economics (3 credits)

- (3) **AGEC 217** (Economics)
- (3) **ECON 210** (Principles of Economics)
- (3) **ECON 251** (Microeconomics)
- (3) **ECON 252** (Macroeconomics)

Plans of study may include AGEC 217 or ECON 210, but not both.

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
Interdisciplinary Studies
Philosophy
Visual and Performing Arts

International Understanding

All undergraduate plans of study leading to the degree of Bachelor of Science, Bachelor of Sci-

* Course selection is limited to AGEC 250, 305, 340, 406, 410, 415, 450. No more than six credits can be taken from Agricultural Economics to fulfill other social sciences requirements.

† Course selection is limited to AGR 201.

‡ Course selection is limited to FNR 375.

§ Course selection is limited to EDPS 235, 265.

// A maximum of three credits of band may be used to fulfill humanities requirements.

¶ Course selection is limited to EDST 200.

** Course selection is limited to ENGL 227, 230, 231, 232, 235, 237, 238, 239, 240, 241, 250, 257, 262, 264, 266, 267, 276, 279, 331, 333, 335, 337, 350, 351, 356, 360, 364, 372, 373, 375, 377, 379, 381, 382, 383, 386, 387, 396, 411, 412, 413, 414, 441, 442, 444, 462, 463, 468, 469, 492.

*** A minimum of six credits of a foreign language must be earned to be included in a plan of study.

ence 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 495) 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 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 non-credit 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 250** (Economic Geography of World Food and Resources)
- (3) **AGEC 340** (International Economic Development)
- (3) **AGEC 450** (International Agricultural Trade)
- (1-3) **AGR 493** (Special Topics in International Agriculture)
- (0) **AGR 495** (International Professional Experience in Agriculture, Food, or Natural Resources)
- (3) **AGRY 285** (World Crop Adaptation and Distribution)
- (1-3) **AGRY 350** (Global Awareness)
- (3) **AGRY 399K** (Exploring International Agriculture)
- (3) **AGRY 570** (Agronomy in International Development)
- (3) **ANSC 294** (Exploring International Animal Agriculture)
- (3) **ANSC 295K** (Exploring International Agriculture)
- (3) **ANTH 100** (Introduction to Anthropology)
- (3) **ANTH 205** (Human Cultural Diversity)
- (3) **ANTH 578** (Peoples of Middle America)
- (3) **BTNY 201** (Plants and Civilization)
- (3) **COM 224** (Communicating in the Global Workplace)
- (3) **COM 424** (Communication in International Organizations)
- (3) **ECON 370** (International Trade)
- (3) **ECON 466** (International Economics)
- (3) **ENGL 266** (World Literature: From the Beginnings to 1700 A.D.)
- (3) **ENGL 267** (World Literature: From 1700 A.D. to the Present)
- (3) **FNR 230** (The World's Forests and Society)
- (3) **FNR 460** (International Natural Resources Summer Program)
- (3) **FNR 488** (Global Environmental Issues)
- (3) **HIST 240** (East Asia and Its Historic Transition)
- (3) **HIST 241** (East Asia in the Modern World)
- (3) **HIST 245** (Middle East History and Culture)
- (3) **HIST 271** (Latin American History to 1824)

- (3) **HIST 272** (Latin American History from 1824)
- (3) **HIST 302** (History of Horticulture)
- (3) **HIST 323** (German History)
- (3) **HIST 324** (Modern France)
- (3) **HIST 340** (Modern China)
- (3) **HIST 341** (History of Africa South of the Sahara)
- (3) **HIST 342** (Africa and the West)
- (3) **HIST 343** (Traditional Japan)
- (3) **HIST 344** (History of Modern Japan)
- (3) **HIST 345** (Modern Middle East)
- (3) **HIST 441** (Africa in the Twentieth Century)
- (3) **HIST 450** (In The English Landscape: Integrating History, Horticulture, and Landscape Architecture)
- (3) **HIST 472** (History of Mexico)
- (3) **HORT 306** (History of Horticulture)
- (3) **HORT 403** (Tropical Horticulture)
- (3) **HORT 450** (In The English Landscape: Integrating History, Horticulture, and Landscape Architecture)
- (3) **L A 166** (History and Theory of Landscape Architecture)
- (3) **L A 450** (In The English Landscape: Integrating History, Horticulture, and Landscape Architecture)
- (3) **PHIL 330** (Religions of the East)
- (3) **PHIL 331** (Religions of the West)
- (3) **POL 130** (Introduction to International Relations)
- (3) **POL 141** (Governments of the World)
- (3) **POL 232** (Contemporary Crises in International Relations)
- (3) **POL 235** (International Relations Among Rich and Poor Nations)
- (3) **POL 237** (Modern Weapons and International Relations)
- (3) **POL 290** (Russia: Yesterday, Today, and Tomorrow)
- (3) **POL 304** (Israel and World Politics)
- (3) **POL 344** (Introduction to the Politics of the Third World)
- (3) **POL 345** (West European Democracies in the Post-Industrial Era)
- (3) **POL 433** (International Organization)
- (3) **POL 434** (United States Foreign Policy, Central America and the Caribbean)
- (3) **POL 435** (International Law)
- (3) **POL 442** (Government and Politics in Russia)
- (3) **POL 447** (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 and Biological Engi-

neering, 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 201** (Communicating Across Culture). The AGR 201 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 201 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 496** (Multicultural Professional Experience). Successful completion of an approved non-credit multicultural awareness work experience (AGR 496) 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 496. 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 by the Agricultural Faculty Curriculum and Student Relations Committee of the course syllabus, to determine that it 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) **ANTH 303** (Gender Across Cultures)
- (3) **ANTH 379** (Indians of North America)
- (3) **COM 376** (Communication and Gender)
- (3) **COM 381** (Gender and Feminist Studies in Communication)
- (3) **EDCI 285** (Multiculturalism and Education)
- (3) **ENGL 257** (Literature of Black America)
- (3) **ENGL 358** (Black Drama)
- (3) **ENGL 360** (Gender and Literature)
- (3) **HIST 365** (Women in America)
- (3) **HIST 366** (Hispanic Heritage of the United States)
- (3) **HIST 377** (History and Culture of Native America)
- (3) **HIST 396** (The Afro-American to 1865)
- (3) **HIST 398** (The Afro-American since 1865)
- (3) **HK 226** (Contemporary Women's Health)
- (3) **IDIS 271** (Introduction to Afro-American Studies)
- (3) **IDIS 280** (Women's Studies: An Introduction)
- (3) **IDIS 330** (Introduction to Jewish Studies)
- (3) **IDIS 370** (Black Women Rising)
- (3) **IDIS 375** (Black Family)
- (3) **IDIS 376** (African American Male)
- (3) **IDIS 481** (Women of Color in the United States)
- (3) **PHIL 225** (Philosophy of Women)
- (3) **PHIL 242** (Philosophy, Culture and the African American Experience)
- (3) **PHIL 330** (Religions of the East) *
- (3) **POL 222** (Women, Politics, and Public Policy)
- (3) **POL 326** (Black Political Participation in America)
- (3) **POL 360** (Women and the Law)
- (3) **POL 456** (African American Political Thought)
- (3) **PSY 225** (Stereotyping and Prejudice)
- (3) **PSY 239** (The Psychology of Women)
- (3) **PSY 368** (Children's Development in Cross-Cultural Perspective)
- (3) **SOC 220** (Social Problems)
- (3) **SOC 310** (Racial and Ethnic Diversity)
- (3) **SOC 450** (Gender Roles in Modern Society)
- (3) **SPAN 235** (Mexican and Latino Culture) *
- (3) **YDAE 385** (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 cho-

sen 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 following capstone courses and experiences have been approved by the Agricultural Faculty:

- (4) **ABE 485** (Agricultural and Biological Engineering Design)
- (4) **ABE 556** (Biological and Food Process Design)
- (4) **AGEC 411** (Farm Management)
- (2) **AGEC 429** (Agribusiness Marketing Workshop)
- (3) **AGEC 430** (Agricultural and Food Business Strategy)
- (1–6) **AGEC 499H** (Honors Thesis)
- (1) **AGRY 498** (Agronomy Senior Seminar) **and**
- (3) **AGRY 585** (Soils and Land Use)
- (1) **AGRY 498** (Agronomy Senior Seminar) **and**
- (3) **AGRY 512** (Integrated Turfgrass Systems)
- (1) **AGRY 498** (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
- (1) **ANSC 481** (Contemporary Issues in Animal Sciences) **and** one production/management course selected from ANSC 440, 441, 442, 443, 444, 445, or 446
- (3) **ASM 495** (Agricultural Systems Management)
- (1) **BCHM 490** (Undergraduate Seminar) **and**
- (2–3) credits of **BCHM 498** (Undergraduate Thesis) or **BCHM 499H** (Honors Thesis) or
- (3) **BCHM 572** (Advanced Biochemical Techniques)
- (1) **BTNY 497** (Undergraduate Seminar) **and**
- (1–3) **BTNY 498** (Research in Plant Science), or with prior approval of the Botany and Plant Pathology faculty, a study abroad, course project, supervised internship, or other supervised work-related experience equivalent to BTNY 497 and 498
- (1–2) **C E 496** (Senior Participation in Engineering Projects in Community Service)
- (8–10) **EDCI 498E** (Supervised Teaching of Agricultural Education)
- (1) **ENTM 491** (Capstone Experience in Entomology)
- (3) **FNR 408** (Ecosystem Management Practice)
- (3) **FS 443** (Food Processing III)
- (3) **HORT 425** (Landscape Horticulture Capstone Project)
- (1) **HORT 440** (Management Strategies in Public Horticulture)
- (1) **HORT 445** (Strategic Analysis of Horticultural Production and Marketing)

*These courses also appear on the suggested course list for College of Agriculture International Understanding electives.

- (1) **HORT 492** (Horticultural Science Capstone Seminar)
- (3) **IT 483** (Facilities Design for Lean Manufacturing)
- (5) **L A 426** (Capstone Course in Landscape Architecture)
- (3) **NRES 581** (Ecological Impact Analysis)
- (3) **YDAE 480** (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 approval of the position must be done by the faculty coordinator.
- Participating departments will offer a noncredit professional experience course. Students must register and pay the industrial practice fee for each professional experience course. A satisfactory summary report for each period of supervised work experience must be submitted by the student 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.
- Salaries, wages, and benefits for registered students in the College of Agriculture Profes-

sional Experience Program will be provided by the employer. Appropriate health and accident insurance should be provided by the employer of the student. 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 as "Dean's Scholars." In addition, the program will motivate 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) and receive a College of Agriculture Dean's Scholar Certificate. This recognition could be in addition to the University Honors Program designation. Students recognized at graduation as Dean's Scholars would not receive the Honors Program in Agriculture designation, which is used for students who participate in the College of Agriculture Honors Program.

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

- All first year students who enter Purdue University College of Agriculture on an Awards of Excellence Scholarship are eligible. Students will be invited to accept a Dean's Scholar status before the Day on Campus new student registration program, and must accept the invitation prior to the Fall Retreat to participate.

- Second semester freshman, 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.agriculture.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 honors program in the student's major program of study.

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.
- A formal statement of interest must be submitted by the student.
- 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 is at www.agriculture.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 endorsement recorded on their transcript.

Following are admissions criteria for the program:

- A minimum of 30 graded credits must be completed at a post-secondary institution toward the student's academic major prior to entering the program.
- 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.agriculture.purdue.edu/oap.

Pass/Not-Pass Grading Policy

A student classified as a sophomore or higher and 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 in a five-week practicum in the Upper Peninsula of Michigan and elsewhere, and through frequent campus-based field exercises. Also, students are encouraged to take advantage of the numerous summer job opportunities that are available. The five-week field practicum is held immediately after the spring semester of the sophomore year.

Plans of Study

In the “Plans of Study” section of this catalog, figures within parentheses, e.g., (3), are credit

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.

hours, unless designated otherwise.

Preprofessional Curricula

Preagricultural and Biological Engineering

Students who wish to earn the Bachelor of Science degree in Agricultural and 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

Freshman 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 biological engineering or biological and food process engineering.

Credit Hours Required: 33

Freshman Year

First Semester

- (4) **CHM 115** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **ENGR 126** (Engineering Problem Solving and Computer Tools)
- (4) **MA 165** (Analytic Geometry and Calculus I)
- (1) Introduction to the College of Agriculture and Purdue University or Freshman Engineering Lectures elective

(16)

Second Semester

- (4) **CHM 116** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (2) **C S 156** (C Programming for Engineers)
- (4) **MA 166** (Analytic Geometry and Calculus II)
- (4) **PHYS 152** (Mechanics)

(17)

Preenvironmental Studies

The preenvironmental 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 environmental or natural resources major offered by a department in one of the Purdue colleges, you may do so without going through the preenvironmental studies program.

Credit Hours Required: 34*

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **FNR 103** (Introduction to Environmental Conservation)
- (3) **MA 223** (Introductory Analysis I)
- (4) Biological sciences elective

(17)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **MA 224** (Introductory Analysis II)
- (4) Biological sciences elective
- (3) Introduction to environmental science elective

(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

- (3) **A&D 105** (Design I)‡
- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **L A 101** (Survey of Landscape Architecture)‡
- (3) **L A 116** (Graphic Communication for Students of Landscape Architecture and Design)‡
- (4) Biological sciences elective

(17)

Second Semester

- (4) **ENGL 106** (First-Year Composition)‡
- (3) **L A 216** (Landscape Architectural Design I)‡
- (1) **L A 250** (Architectural Design)
- (3) Basic drawing or design elective‡
- (4) Biological sciences elective
- (3) Statistics or calculus elective

(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. These courses 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, and 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 159 advanced credit examination or by enrolling in, and satisfactorily completing, MA 153 and 154, or MA 159. These courses are not applicable as credit toward graduation.

Prelandscape architecture students who wish to be admitted to the landscape architecture professional program should apply no later than March 15 for admission to the program for the following fall semester. The number of students selected may be limited by facilities. Acceptance of candidates from the prelandscape architecture program, within the admission limits, will be based on the composite of:

- Grade point average of passing grades in the following prelandscape architecture core courses: A&D 105, and 106 or 113; ENGL 106 or equivalent; L A 101, 116, and 216.
- A portfolio of design and graphic work from A&D 105, and 106 or 113; L A 116 and 216.
- An essay concerning professional goals.

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

- Availability of facilities.
- Evidence of academic credits equivalent to the course content of the Purdue University prelandscape architecture program and evaluation of grade point average in those courses.
- A portfolio of design and graphic work equivalent to A&D 105, and 106 or 113; L A 116 and 216.
- An essay concerning professional goals.

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 Pro-

grams, 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

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (4) **CHM 115** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 223** (Introductory Analysis I)
- (16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
 - (4) **CHM 116** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **MA 224** (Introductory Analysis II)
 - (1) **V M 102** (Careers in Veterinary Medicine)
- (15)

Sophomore Year

Third Semester

- (3) **ANSC 221** (Principles of Animal Nutrition)
 - (3) **BIOL 231** (Biology III: Cell Structure and Function)
 - (2) **BIOL 232** (Laboratory in Biology III: Cell Structure and Function)
 - (3) **CHM 255** (Organic Chemistry)
 - (1) **CHM 255L** (Organic Chemistry Laboratory)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Humanities elective
- (18)

Fourth Semester

- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (3) **CHM 256** (Organic Chemistry)
- (1) **CHM 256L** (Organic Chemistry Laboratory)
- (3) Agricultural elective
- (3) Economics elective
- (3) Social science elective

(17)

Junior Year***Fifth Semester***

- (3) **BCHM 307** (Biochemistry)
 - (4) **PHYS 220** (General Physics)
 - (6) Agricultural electives
 - (3) Humanities elective
-
- (16)

Sixth Semester

- (4) **BIOL 221** (Introduction to Microbiology)
 - (4) **PHYS 221** (General Physics)
 - (7) Agricultural electives
 - (3) Written or oral communication elective
-
- (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 when 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
 - (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
 - (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **ENGL 106** (First-Year Composition)
 - (4) Biological sciences elective
 - (3) Introduction to calculus or introductory analysis elective
-
- (16)

Second Semester

- (3) **AGEC 217** (Economics)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (4) Biological sciences elective
 - (3) Humanities elective
 - (3) Elective
-
- (16)

Sophomore Year**Third Semester**

- (3) **AGEC 220** (Marketing Farm Products)
 - (1) **AGEC 298** (Sophomore Seminar)
 - (3) **CHM 111** (General Chemistry)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Social science elective
 - (3) Elective
-
- (16)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
 - (3) **MGMT 200** (Introductory Accounting)
 - (3) Agribusiness management elective
 - (3) Humanities elective
 - (3) Written or oral communication elective
-
- (15)

Junior Year**Fifth Semester**

- (4) **AGEC 424** (Financial Management of Agricultural Business)
 - (3) **ECON 251** (Microeconomics)
 - (3) Quantitative techniques for firm decision making or applied econometrics elective
 - (3) Social science or humanities elective
 - (3) Elective
-
- (16)

Sixth Semester

- (3) **AGEC 426** (Marketing Management of Agricultural Business)
 - (3) Agribusiness management elective
 - (3) Economics elective
 - (3) Mathematics or sciences elective
 - (3) Written or oral communication elective
 - (3) Elective
-
- (18)

Senior Year**Seventh Semester**

- (3) Agribusiness management elective
 - (5) Agricultural economics electives
 - (3) Economics elective
 - (3) Social science, humanities, or international understanding elective
 - (3) Elective
-
- (17)

Eighth Semester

- (3) **AGEC 430** (Agricultural and Food Business Strategy)
 - (3) Agricultural economics elective
 - (2) Mathematics or sciences elective
 - (3) Social science or humanities elective (300+ level)
 - (5) Electives
-
- (16)

Agricultural and Biological Engineering

Agricultural and biological engineers apply their knowledge of biological and agricultural systems and engineering to equipment design and assure environmental compatibility of practices used by production agriculture. The Department of Agricultural and Biological Engineering curriculum offers great breadth, with specialization choices in engineering applied to mobile equipment, machine systems, soil and water resources,

and wood products. Subject areas include computer-aided engineering, fluid power, finite element analysis, natural resource conservation, and engineering properties of biological materials. Excellent career opportunities exist in product engineering, equipment research and design, facilities design, environmental consulting, and engineering management.

Credit Hours Required for Graduation: 130* (See “International Understanding, Multicultural Awareness, and Capstone Course requirements” on page 25.)

Freshman Year

First Semester

- (4) **CHM 115** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **ENGR 126** (Engineering Problem Solving and Computer Tools)
 - (4) **MA 165** (Analytic Geometry and Calculus I)
 - (1) Introduction to the College of Agriculture and Purdue University or Freshman Engineering Lectures elective
- (17)

Second Semester

- (4) **CHM 116** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (2) **C S 156** (C Programming for Engineers)
 - (4) **MA 166** (Analytic Geometry and Calculus II)
 - (4) **PHYS 152** (Mechanics)
- (17)

Sophomore Year

Third Semester

- (3) **ABE 205** (Engineering Computations for Biological Systems)
 - (4) **MA 261** (Multivariate Calculus)
 - (3) **M E 270** (Basic Mechanics I)
 - (3) **PHYS 241** (Electricity and Optics)
 - (4) Biological sciences elective
- (17)

Fourth Semester

- (3) **ABE 210** (Biological Applications of Material and Energy Balances)
 - (4) **MA 262** (Linear Algebra and Differential Equations)
 - (3) **M E 274** (Basic Mechanics II)
 - (3) **NUCL 273** (Mechanics of Materials)
 - (3) Social science elective†
- (16)

Junior Year

Fifth Semester

- (3) **ABE 305** (Physical Properties of Biological Materials)
 - (4) **ABE 325** (Soil and Water Resource Engineering)
 - (3) **AGRY 255** (Soil Science)
 - (3) Humanities elective†
 - (4) Hydraulics and elementary hydraulics lab or fluid mechanics elective
- (17)

Sixth Semester

- (3) **ABE 330** (Design of Machine Components)
 - (3) **ECE 201** (Linear Circuit Analysis I)
 - (4) Biological sciences elective
 - (3) Economics elective†
 - (3) Elective
- (16)

* The plan of study must include six credits of international understanding electives or equivalent.

† A total of 15 credit hours of humanities and social sciences electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.

Senior Year

Seventh Semester

- (3) **ABE 435** (Hydraulic Control Systems for Mobile Equipment)
 - (3) **ABE 450** (Finite Element Method in Design and Optimization)
 - (1) **ABE 490** (Professional Practice in Agricultural and Biological Engineering)
 - (3) Agricultural elective
 - (3) Engineering technical elective
 - (3) Written or oral communication elective
- (16)

Eighth Semester

- (4) **ABE 485** (Agricultural and Biological Engineering Design)
 - (3) Engineering technical elective
 - (3) Humanities elective*
 - (3) Social science or humanities elective*
 - (2) Elective
- (15)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **YDAE 152** (Agricultural Communication Seminar)
 - (3) Agricultural elective
- (15)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **COM 250** (Mass Communication and Society)
 - (3) Agricultural elective
 - (3) Social science elective
- (16)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (3) **CHM 111** (General Chemistry)
 - (3) **COM 204** (Critical Perspectives on Communication)
 - (3) **MA 220** (Introduction to Calculus)
 - (3) Agricultural elective
 - (3) Written or oral communication elective
- (18)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
 - (3) **COM 252** (Writing for Mass Media)
 - (3) **COM 318** (Principles of Persuasion)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Humanities elective
 - (3) Mathematics or sciences elective
- (18)

* A total of 15 credit hours of humanities and social sciences electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.

Junior Year

Fifth Semester

- (3) **COM 311** (Copy Editing)
- (3) Agricultural elective
- (3) Humanities elective
- (3) Mathematics or sciences elective
- (4) Electives

(16)

Sixth Semester

- (3) **YDAE 460** (Agricultural Publishing)
- (3) Agricultural elective
- (5) Communication or agricultural communication electives
- (2) Mathematics or sciences elective
- (3) Social science or humanities elective (300+ level)

(16)

Senior Year

Seventh Semester

- (3) **YDAE 480** (Agricultural Communication Capstone Seminar)
- (3) Agricultural elective
- (3) Communication or agricultural communication elective
- (3) Social science, humanities, or international understanding elective
- (4) Electives

(16)

Eighth Semester

- (3) Agricultural elective
- (3) Communication or agricultural communication elective
- (3) Science communication elective
- (3) Social science or humanities elective
- (3) Elective

(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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
- (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **ENGL 106** (First-Year Composition)
- (4) Biological sciences elective
- (3) Introduction to calculus or introductory analysis elective

(16)

Second Semester

- (3) **AGEC 217** (Economics)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (4) Biological sciences elective
- (3) Humanities elective
- (3) Elective

(16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
- (1) **AGEC 298** (Sophomore Seminar)
- (3) **CHM 111** (General Chemistry)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Social science elective
- (3) Elective
- (16)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
- (3) **ECON 251** (Microeconomics)
- (3) **MGMT 200** (Introductory Accounting)
- (3) Farm organization or management methods for agricultural business elective
- (3) Elective
- (15)

Junior Year

Fifth Semester

- (3) Economics elective
- (3) Quantitative techniques for firm decision making or applied econometrics elective
- (3) Social science, humanities, or international understanding elective
- (3) Written or oral communication elective
- (5) Electives
- (17)

Sixth Semester

- (3) Agricultural economics elective
- (3) Humanities elective
- (3) Mathematics or sciences elective
- (3) Written or oral communication elective
- (5) Electives
- (17)

Senior Year

Seventh Semester

- (8) Agricultural economics electives
- (3) Economics elective
- (3) Social science or humanities elective (300+ level)
- (3) Elective
- (17)

Eighth Semester

- (3) Agricultural economics elective
- (2) Mathematics or sciences elective
- (3) Social science or humanities elective
- (8) Electives
- (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.

Credit Hours Required for Graduation: 130 (See “International Understanding, Multicultural Awareness, and Capstone Course requirements” on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **FS 161** (Science of Food)
- (3) Technical elective
- (14)

Second Semester

- (3) **AGEC 217** (Economics)
- (4) **BTNY 210** (Introduction to Plant Science)
- (2) **EDCI 270** (Introduction to Educational Technology and Computing)
- (1) **EDCI 271** (Classroom Applications of Educational Technology)
- (4) **ENGL 106** (First-Year Composition)
- (3) Technical elective
- (17)

Sophomore Year***Third Semester***

- (3) **CHM 111** (General Chemistry)
- (3) **EDCI 205** (Exploring Teaching as a Career)
- (3) **EDCI 285** (Multiculturalism and Education)
- (3) **MA 220** (Introduction to Calculus)
- (3) Technical elective

(15)

Fourth Semester

- (3) **ASM 201** (Construction and Maintenance)
- (3) **CHM 112** (General Chemistry)
- (3) **EDPS 235** (Learning and Motivation)
- (3) **EDPS 265** (The Inclusive Classroom)
- (3) **HORT 201** (Plant Propagation)
- (3) Technical elective

(18)

Junior Year***Fifth Semester***

- (3) **AGRY 255** (Soil Science)
- (3) **AGRY 320** (Genetics)
- (3) **EDST 200** (History and Philosophy of Education)
- (2) **ENTM 206** (General Entomology)
- (2) **YDAE 318** (Coordination of Supervised Agricultural Experience Programs)
- (3) Technical elective

(16)

Sixth Semester

- (3) **AGRY 375** (Crop Production Systems)
- (3) **ANSC 221** (Principles of Animal Nutrition)
- (2) **YDAE 319** (Planning Agricultural Science and Business Programs)
- (1) **YDAE 441** (Field Experience in Agricultural Education Programs)
- (3) Agricultural economics elective
- (3) Humanities elective
- (3) Technical elective

(18)

Senior Year***Seventh Semester***

- (3) **STAT 301** (Elementary Statistical Methods)
- (3) **YDAE 440** (Methods of Teaching Agricultural Education)
- (3) Directed elective
- (3) Forestry and natural resources or natural resources and environmental science elective
- (3) International understanding elective
- (3) Social science or humanities elective (300+ level)

(18)

Eighth Semester

- (1) **ASM 350** (Safety in Agriculture)
- (10) **EDCI 498** (Supervised Teaching of Agricultural Education)
- (1) **ENTM 207** (General Entomology Laboratory)
- (2) **YDAE 451** (Youth Organizations in Agriculture)

(14)

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. This option from the Department of

Agricultural Economics can lead to careers in areas such as commercial banks, farm credit administration, Farm Service Agency, 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
- (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **ENGL 106** (First-Year Composition)
- (4) Biological sciences elective
- (3) Introduction to calculus or introductory analysis elective

(16)

Second Semester

- (3) **AGEC 217** (Economics)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (4) Biological sciences elective
- (3) Humanities elective
- (3) Elective

(16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
- (1) **AGEC 298** (Sophomore Seminar)
- (3) **CHM 111** (General Chemistry)
- (3) **MGMT 200** (Introductory Accounting)
- (3) Humanities elective
- (3) Elective

(16)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
- (3) **ECON 252** (Macroeconomics)
- (3) **MGMT 201** (Management Accounting I)
- (3) **STAT 301** (Elementary Statistical Methods)
- (5) Electives

(17)

Junior Year

Fifth Semester

- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) Agricultural economics elective
- (3) Quantitative techniques for firm decision making or applied econometrics elective
- (3) Social science, humanities, or international understanding elective
- (3) Elective

(16)

Sixth Semester

- (3) **AGEC 310** (Farm Organization)
- (3) Agribusiness management elective
- (3) Agricultural economics elective
- (3) Mathematics or sciences elective
- (3) Written or oral communication elective
- (2) Elective

(17)

Senior Year

Seventh Semester

- (3) Agribusiness management elective
- (3) Economics elective
- (4) Farm management or agricultural and food business strategy elective
- (3) Social science or humanities elective (300+ level)
- (3) Written or oral communication elective

(16)

Eighth Semester

- (3) **AGEC 524** (Agricultural Finance)
- (2) Agribusiness management elective
- (2) Mathematics or sciences elective
- (3) Social science elective
- (3) Social science or humanities elective
- (3) Elective

(16)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (3) **ASM 104** (Introduction to Agricultural Systems)
 - (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Agricultural elective
 - (4) Biological sciences elective
- (17)

Second Semester

- (3) **ASM 231** (Computer Applications in Agriculture)
 - (3) **CHM 112** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 220** (Introduction to Calculus)
 - (4) Biological sciences elective
- (17)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (3) **ASM 211** (Technical Graphic Communications)
 - (1) **ASM 221** (Career Opportunities Seminar)
 - (3) **ASM 222** (Crop Production Equipment)
 - (3) Physics elective
 - (3) Social science or humanities elective
- (16)

Fourth Semester

- (3) **AGRY 255** (Soil Science)
 - (3) **ASM 245** (Materials Handling and Processing)
 - (1) **ASM 350** (Safety in Agriculture)
 - (3) Agricultural elective
 - (3) Introductory accounting elective
 - (2) Mathematics or sciences elective
- (15)

Junior Year

Fifth Semester

- (3) **ASM 336** (Environmental Systems Management)
 - (3) **ASM 345** (Power Units and Power Trains)
 - (2) Directed elective
 - (3) Organizational leadership and supervision elective
 - (3) Statistics elective
 - (3) Written or oral communication elective
- (17)

Sixth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
 - (3) **ASM 333** (Facilities Planning and Management)
 - (3) Agricultural elective
 - (3) Humanities elective
 - (3) Social science elective
 - (3) Elective
- (18)

Senior Year

Seventh Semester

- (3) **ASM 420** (Electric Power and Controls)
- (1) **ASM 421** (Senior Seminar)
- (3) Farm organization or management methods
for agricultural business elective
- (3) Management elective
- (3) Social science or humanities elective
- (3) Elective
- (16)

Eighth Semester

- (3) **AGEC 220** (Marketing Farm Products)
- (3) **ASM 495** (Agricultural Systems Management)
- (3) Agricultural systems management or agricultural
and biological engineering elective (400+ level)
- (3) International understanding elective
- (3) Social science or humanities elective
(300+ level)
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of
Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) Agronomy crops elective
- (3) Introduction to calculus or introductory
analysis elective
- (18)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech
Communication)
- (3) Core economics elective
- (3) Elective
- (16)

Sophomore Year

Third Semester

- (3) **AGRY 255** (Soil Science)
- (1) **AGRY 398** (Agronomy Seminar)
- (4) **CHM 257** (Organic Chemistry)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Social science elective
- (3) Written or oral communication elective
- (17)

Fourth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural
Business)
- (3) **AGRY 365** (Soil Fertility)
- (3) **BTNY 304** (Introductory Weed Science)
- (3) Social science or humanities elective
- (3) Elective
- (15)

Junior Year***Fifth Semester***

- (3) **AGRY 320** (Genetics)
 - (3) **ENGL 420** (Business Writing)
 - (3) Agricultural economics, economics, management, or organizational leadership and supervision elective
 - (3) Agronomy elective
 - (3) Management methods for agricultural business or accounting elective
 - (1) Science elective
- (16)

Sixth Semester

- (3) **BTNY 301** (Introductory Plant Pathology)
 - (3) Agronomy elective
 - (3) Humanities elective
 - (6) Electives
- (15)

Senior Year***Seventh Semester***

- (1) **AGRY 498** (Agronomy Senior Seminar)
 - (3) Agricultural economics, economics, management, or organizational leadership and supervision elective
 - (3) Agronomy elective
 - (3) International understanding elective
 - (4) Mathematics or sciences elective
 - (3) Social science or humanities elective
- (17)

Eighth Semester

- (2) **ENTM 206** (General Entomology)
 - (1) **ENTM 207** (General Entomology Laboratory)
 - (3) Agricultural economics, economics, management, or organizational leadership and supervision elective
 - (4) Mathematics or sciences elective
 - (3) Social science or humanities elective (300+ level)
 - (3) Elective
- (16)

Animal Agribusiness

This option may be chosen by students primarily interested in career opportunities in animal agricultural businesses. This Department of Animal Sciences plan of study provides a solid background in animal science and in economics, management, and agricultural economics. Agribusiness graduates are prepared to work in managerial positions on farms and related agri-

businesses; to provide sales, technical service, and computer assistance to animal production systems involving feed and health products, equipment, and facilities; or to offer financial and management services as representatives of lending agencies in other areas of agricultural businesses.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 220** (Introduction to Calculus)
 - (3) Animal sciences elective
- (18)

Second Semester

- (1) **ANSC 181** (Orientation to Animal Sciences)
 - (4) **BIOL 111** (Fundamentals of Biology II)
 - (3) **CHM 112** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Humanities elective
 - (2) Mathematics or sciences elective
- (16)

Sophomore Year

<i>Third Semester</i>	<i>Fourth Semester</i>
(3) ANSC 221 (Principles of Animal Nutrition) (3) Accounting for farm business planning or introductory accounting elective (1) Animal sciences elective (3) Chemistry or physics elective (3) Economics elective (3) Written or oral communication elective (16)	(3) AGRY 320 (Genetics) (4) ANSC 230 (Physiology of Domestic Animals) (3) Agricultural economics, economics, or management elective (3) Social science elective (3) Written or oral communication elective (16)

Junior Year

<i>Fifth Semester</i>	<i>Sixth Semester</i>
(3) STAT 301 (Elementary Statistical Methods) (3) Agricultural economics, economics, or management elective (3) Animal nutrition elective (3) Animal products elective (3) Humanities elective (15)	(3) Agricultural economics, economics, or management elective (4) Animal genetics elective (3) Animal physiology elective (3) Social science or humanities elective (3) Elective (16)

Senior Year

<i>Seventh Semester</i>	<i>Eighth Semester</i>
(1) ANSC 481 (Contemporary Issues in Animal Sciences) (3) Agricultural economics, economics, or management elective (3) Animal production or management elective (2) Animal sciences elective (3) Social science or humanities elective (300+ level) (6) Electives (18)	(3) Agricultural economics, economics, or management elective (2) Animal sciences elective (10) Electives (15)

Animal Production

This Department of Animal Sciences option provides strong technological credentials in animal sciences and supporting fields for students desiring careers in family and corporate animal production systems. Opportunities are most prevalent for students planning to be managers or owner-managers of dairy, beef, swine,

sheep, poultry, and horse production units. Also, agribusiness opportunities are available where graduates desire to work with producer clientele in providing agricultural products and technical service; with commodity organizations; or with meat, milk, or egg processors in production and procurement of high quality products.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **MA 220** (Introduction to Calculus)
- (3) Animal sciences elective
- (17)

Second Semester

- (1) **ANSC 181** (Orientation to Animal Sciences)
- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) Humanities elective
- (3) Elective
- (18)

Sophomore Year

Third Semester

- (3) **ANSC 221** (Principles of Animal Nutrition)
- (4) **CHM 257** (Organic Chemistry)
- (3) Economics elective
- (1) Mathematics or sciences elective
- (3) Social science elective
- (3) Written or oral communication elective
- (17)

Fourth Semester

- (3) **AGRY 320** (Genetics)
- (4) **ANSC 230** (Physiology of Domestic Animals)
- (3) **BCHM 307** (Biochemistry)
- (3) Financial management elective
- (3) Humanities elective
- (16)

Junior Year

Fifth Semester

- (4) **BIOL 221** (Introduction to Microbiology)
- (3) **STAT 301** (Elementary Statistical Models)
- (3) Animal nutrition elective
- (3) Animal products elective
- (3) Social science or humanities elective
- (16)

Sixth Semester

- (4) Animal genetics elective
- (3) Animal physiology elective
- (3) Enterprise management elective
- (3) Non-animal sciences production or management elective
- (3) Elective
- (16)

Senior Year

Seventh Semester

- (1) **ANSC 481** (Contemporary Issues in Animal Sciences)
- (3) Animal production or management elective
- (2) Animal sciences elective
- (3) Enterprise management elective
- (3) Social science or humanities elective (300+ level)
- (3) Written communication elective
- (15)

Eighth Semester

- (3) Animal sciences elective
- (3) Non-animal sciences production or management elective
- (9) Electives
- (15)

Animal Products

Graduates completing this Department of Animal Sciences option are well qualified to enter careers in the food processing industries — especially in positions that require knowledge of both animal products and animal production. Graduates are particularly suited for positions in animal procurement, grading, quality control,

carcass evaluation and improvement, and product promotion. Opportunities also are available with regulatory agencies, commodity organizations, processors, and industries integrated from production through value-added wholesale and retail products.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **MA 220** (Introduction to Calculus)
- (3) Animal sciences elective
- (17)

Second Semester

- (1) **ANSC 181** (Orientation to Animal Sciences)
- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) Humanities elective
- (2) Animal sciences elective

(17)

Sophomore Year

Third Semester

- (3) **ANSC 221** (Principles of Animal Nutrition)
- (4) **CHM 257** (Organic Chemistry)
- (3) Economics elective
- (1) Mathematics or sciences elective
- (3) Social science elective
- (3) Written or oral communication elective
- (17)

Fourth Semester

- (3) **AGRY 320** (Genetics)
- (4) **ANSC 230** (Physiology of Domestic Animals)
- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (3) Business management elective
- (3) Humanities elective

(17)

Junior Year

Fifth Semester

- (4) **BIOL 221** (Introduction to Microbiology)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Animal nutrition elective
- (3) Animal products elective
- (3) Elective
- (16)

Sixth Semester

- (4) Animal genetics elective
- (3) Animal physiology elective
- (3) Social science or humanities elective
- (6) Electives

(16)

Senior Year***Seventh Semester***

- (1) **ANSC 481** (Contemporary Issues in Animal Sciences)
 - (3) Animal production or management elective
 - (3) Food science elective
 - (3) Social science or humanities elective (300+ level)
 - (6) Electives
-
- (16)

Eighth Semester

- (3) Animal sciences elective
 - (3) Written communication elective
 - (8) Electives
-
- (14)

Animal Science

Four specializations have been developed 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 students' career goal they may specialize in pre-veterinary medicine, bio-

technology, animal behavior/well-being, or animal biosciences. Each of the specializations has a similar core of basic science and animal science course requirements, but it allows a student to concentrate in a particular area of interest through an elective block.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (4) **CHM 115** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 223** (Introductory Analysis I)
-
- (16)

Second Semester

- (1) **ANSC 181** (Orientation to Animal Sciences)
 - (4) **BIOL 111** (Fundamentals of Biology II)
 - (4) **CHM 116** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **MA 224** (Introductory Analysis II)
 - (3) Animal sciences elective
-
- (18)

Sophomore Year***Third Semester***

- (3) **ANSC 221** (Principles of Animal Nutrition)
 - (3) **CHM 255** (Organic Chemistry)
 - (1) **CHM 255L** (Organic Chemistry Laboratory)
 - (3) Economics elective
 - (3) Science elective
 - (3) Written or oral communication elective
-
- (16)

Fourth Semester

- (3) **AGRY 320** (Genetics)
 - (1) **AGRY 321** (Genetics Laboratory)
 - (4) **ANSC 230** (Physiology of Domestic Animals)
 - (3) **CHM 256** (Organic Chemistry)
 - (1) **CHM 256L** (Organic Chemistry Laboratory)
 - (3) Humanities elective
-
- (15)

Junior Year***Fifth Semester***

- (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Animal nutrition elective
 - (3) Animal products elective
 - (3) Social science elective
-
- (16)

Sixth Semester

- (4) Animal genetics elective
 - (3) Animal physiology elective
 - (3) Humanities elective
 - (3) Science elective
 - (3) Written communication elective
-
- (16)

Senior Year***Seventh Semester***

- (1) **ANSC 481** (Contemporary Issues in Animal Sciences)
 - (3) Animal production or management elective
 - (3) Animal sciences elective
 - (3) Science elective
 - (3) Social science or humanities elective
 - (3) Elective
-
- (16)

Eighth Semester

- (2) Animal sciences elective
 - (3) Science elective
 - (3) Social science or humanities elective (300+ level)
 - (9) Electives
-
- (17)

Animal Behavior/Well-Being Specialization

Students desiring a balance of animal production, behavioral sciences, and well-being are best served by this specialization. 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 scientists at universities.

Animal Biosciences Specialization

This specialization 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. Those in this specialization should have a strong interest in and curiosity in discovery and have enjoyed their high school biology, chemistry, mathematics, and physics courses. Students who aspire to careers in research and teaching in colleges and universities or in agribusinesses should enroll in this option. It can also be used as excellent preparation for professional careers such

as human medical doctors, veterinarians, dentists, and employment in the nutrition, genomics, and pharmaceutical industries. Graduates continuing for the M.S. or Ph.D. in animal science qualify for numerous research, teaching, or extension positions in industry, government, universities, and colleges.

Biotechnology Specialization

This specialization is intended for students seeking careers in the biotechnology and pharmaceutical industries, or who are interested in pursuing advanced degrees in the fields of molecular and cell biology or biochemistry. Students in this specialization 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 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 the 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 Specialization

This curriculum includes all courses that are required for admission to the School of Veterinary Medicine and the Bachelor of Science degree in Animal Sciences. Students are prepared to apply to the School of Veterinary Medicine during their third year and, if accepted, can earn a degree in Animal Sciences by completing six appropriate Department of Animal Sciences courses and 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 can apply to medical or dental schools or 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 when 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. 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (5) **MA 161** (Plane Analytic Geometry and Calculus I)
- (3) Elective
- (16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (0) **EAS 133** (Profession of Meteorology)
- (4) **ENGL 106** (First-Year Composition)
- (5) **MA 162** (Plane Analytic Geometry and Calculus II)
- (16)

Sophomore Year**Third Semester**

- (1) **AGRY 398** (Agronomy Seminar)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **C S 158** (C Programming)
 - (4) **MA 261** (Multivariate Calculus)
 - (4) **PHYS 152** (Mechanics)
 - (3) Core economics elective
-
- (18)

Fourth Semester

- (3) **AGRY 335** (Weather and Climate)
 - (3) **EAS 120** (Introduction to Geography)
 - (4) **MA 262** (Linear Algebra and Differential Equations)
 - (4) **PHYS 241** (Electricity and Optics)
 - (3) Social science or humanities elective
-
- (17)

Junior Year**Fifth Semester**

- (3) **AGRY 375** (Crop Production Systems)
 - (3) **AGRY 431** (Atmospheric Thermodynamics)
 - (1) **AGRY 441** (Synoptic Laboratory I)
 - (3) Humanities elective
 - (3) Social science elective
 - (3) Social science or humanities elective (300+ level)
-
- (16)

Sixth Semester

- (3) **AGRY 432** (Atmospheric Dynamics I)
 - (1) **AGRY 442** (Synoptic Laboratory II)
 - (3) **STAT 511** (Statistical Methods)
 - (3) Humanities elective
 - (7) Electives
-
- (17)

Senior Year**Seventh Semester**

- (3) **AGRY 433** (Atmospheric Dynamics II)
 - (1) **AGRY 443** (Synoptic Laboratory III)
 - (1) **AGRY 498** (Agronomy Senior Seminar)
 - (3) **AGRY 535** (Boundary-Layer Meteorology)
 - (3) **AGRY 545** (Remote Sensing of Land Resources)
 - (3) **EAS 535** (Atmospheric Observations and Measurements)
 - (3) Written or oral communication elective
-
- (17)

Eighth Semester

- (3) **AGRY 536** (Environmental Biophysics)
 - (3) **C E 542** (Hydrology)
 - (3) **EAS 434** (Weather Analysis and Forecasting)
 - (3) **EAS 532** (Atmospheric Physics I)
 - (3) International understanding elective
-
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (2) **BCHM 100** (Introduction to Biochemistry)
- (4) **CHM 115** (General Chemistry)
- (5) **MA 161** (Plane Analytic Geometry and Calculus I)
- (4) Biological sciences elective

(16)

Second Semester

- (4) **CHM 116** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (5) **MA 162** (Plane Analytic Geometry and Calculus II)
- (4) Biological sciences elective

(17)

Sophomore Year

Third Semester

- (3) **BIOL 231** (Biology III: Cell Structure and Function)
- (2) **BIOL 232** (Laboratory in Biology III: Cell Structure and Function)
- (3) **CHM 261** (Organic Chemistry)
- (1) **CHM 263** (Organic Chemistry Laboratory)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Humanities elective

(15)

Fourth Semester

- (3) **BCHM 221** (Analytical Biochemistry)
- (3) **CHM 262** (Organic Chemistry)
- (1) **CHM 264** (Organic Chemistry Laboratory)
- (4) General physics or mechanics elective
- (4) Genetics elective

(15)

Junior Year

Fifth Semester

- (2) **BCHM 322** (Analytical Biochemistry)
- (3) **BCHM 561** (General Biochemistry I)
- (4) General physics or electricity and optics elective
- (3) Science elective
- (5) Electives

(17)

Sixth Semester

- (3) **AGEC 217** (Economics)
- (3) **BCHM 562** (General Biochemistry II)
- (3) Science elective
- (3) Social science elective
- (3) Social science, humanities, or international understanding elective
- (3) Written or oral communication elective

(18)

Senior Year

Seventh Semester

- (3) **BCHM 572** (Advanced Biochemical Techniques)
- (3) Humanities elective
- (4) Science elective
- (2) Social science or humanities elective (300+ level)
- (3) Statistics elective

(16)

Eighth Semester

- (1) **BCHM 490** (Undergraduate Seminar)
- (2) **BCHM 565** (Biochemistry of Life Processes)
- (4) **CHM 372** (Physical Chemistry)
- (2) Science elective
- (6) Social science or humanities electives
- (3) Elective

(18)

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, combined with solid engineering skills. Employment and career advancement opportunities have been excel-

lent for graduates, not only nationally, but also internationally. Graduates of this Department of Agricultural and Biological Engineering program are successful in various positions in the biological and food process industry, such as research development, process and product development, environmental and corporate engineering, and management.

Credit Hours Required for Graduation: 134* (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (4) **CHM 115** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **ENGR 126** (Engineering Problem Solving and Computer Tools)
 - (4) **MA 165** (Analytic Geometry and Calculus I)
 - (1) Introduction to the College of Agriculture and Purdue University or Freshman Engineering Lectures elective
- (16)

Second Semester

- (4) **CHM 116** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (4) **MA 166** (Analytic Geometry and Calculus II)
 - (4) **PHYS 152** (Mechanics)
 - (2) C programming for engineers or FORTRAN elective
- (17)

Sophomore Year

Third Semester

- (3) **ABE 201** (Thermodynamics in Biological Systems I)
- (4) **CHM 257** (Organic Chemistry)
- (4) **MA 261** (Multivariate Calculus)
- (3) **PHYS 241** (Electricity and Optics)
- (3) General education elective†

(17)

Fourth Semester

- (3) **ABE 202** (Thermodynamics in Biological Systems II)
- (3) **MA 265** (Linear Algebra)
- (3) **MA 266** (Ordinary Differential Equations)
- (3) Analytical biochemistry or food science elective
- (3) Engineering technical elective
- (3) General education elective†

(18)

Junior Year

Fifth Semester

- (3) **ABE 303** (Applications of Physical Chemistry to Biological Processes)
- (3) **ABE 310** (Thermodynamics of Food and Biological Systems)
- (3) **BIOL 295E** (Biology of the Living Cell)
- (1) **BIOL 295F** (Quantitative Biology of the Living Cell)
- (3) **CHE 377** (Momentum Transfer)
- (3) General education elective†

(16)

Sixth Semester

- (3) **ABE 370** (Biological/Microbial Kinetics and Reaction Engineering)
- (4) **ABE 454** (Transport Processes in Biological and Food Process Systems)
- (4) **BIOL 221** (Introduction to Microbiology)
- (3) **CHE 378** (Heat and Mass Transfer)
- (3) Engineering elective

(17)

* The plan of study must include six credits of international understanding electives or equivalent.

† A total of 15 credit hours of humanities and social sciences electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.

Senior Year***Seventh Semester***

- (1) **ABE 490** (Professional Practice in Agricultural and Biological Engineering)
 - (4) **ABE 555** (Biological and Food Processing Unit Operations)
 - (3) Biological science or food science elective
 - (3) Engineering elective
 - (6) General education electives*
- (17)

Eighth Semester

- (3) **ABE 460** (Sensors and Process Control)
 - (4) **ABE 556** (Biological and Food Process Design)
 - (3) **ABE 580** (Process Engineering of Renewable Resources)
 - (3) Biological science or food science elective
 - (3) General education elective*
- (16)

Entomology

This Department of Entomology option prepares students for advanced or graduate studies as further preparation for research or college teaching. Students who elect to terminate studies with baccalaureate degrees in entomology are prepared for a variety of entomological careers. These include federal and state experiment sta-

tions and cooperative extension services; sales and promotion or research work with the pesticide industry; public health entomology; sanitarians; regulatory entomology; museum curators; city, county, state, or industrial entomology; and technicians in insect physiology and toxicology.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (1) **ENTM 100** (Orientation to Entomology at Purdue)
 - (2) **ENTM 206** (General Entomology)
 - (1) **ENTM 207** (General Entomology Laboratory)
 - (4) Biological sciences elective
- (16)

Second Semester

- (3) **CHM 112** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (4) Biological sciences elective
 - (3) Insect behavior and ecology elective
 - (3) Social science or humanities elective
- (16)

Sophomore Year***Third Semester***

- (3) Economics elective
 - (3) Humanities elective
 - (4) Insect diversity and identification elective
 - (3) Social science elective
 - (3) Elective
- (16)

Fourth Semester

- (4) **CHM 257** (Organic Chemistry)
 - (3) Calculus elective
 - (3) Ecology elective
 - (3) Entomology elective
 - (3) Philosophy of science, logic, or critical thinking elective
- (16)

* A total of 15 credit hours of humanities and social sciences electives must be taken in accordance with the requirements of the College of Agriculture and the College of Engineering.

Junior Year***Fifth Semester***

- (3) **AGRY 320** (Genetics)
 - (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (3) Insect pest management elective
 - (3) Statistics elective
 - (3) Written or oral communication elective
-
- (16)

Sixth Semester

- (3) Entomology elective
 - (3) Environmental issues elective
 - (3) Mathematics and sciences elective
 - (3) Physics elective
 - (4) Electives
-
- (16)

Senior Year***Seventh Semester***

- (3) Humanities elective
 - (6) Mathematics and sciences electives
 - (3) Social science, humanities, or international understanding elective
 - (5) Electives
-
- (17)

Eighth Semester

- (1) **ENTM 491** (Capstone Experience in Entomology)
 - (3) Botanical sciences elective
 - (3) Insect structure and function elective
 - (3) Mathematics and sciences elective
 - (3) Social science or humanities elective (300+ level)
 - (4) Electives
-
- (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 environmen-

tal 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (1) **BTNY 101** (Plant Science Lectures)
 - (4) **BTNY 210** (Introduction to Plant Science)
 - (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 223** (Introductory Analysis I)
-
- (16)

Second Semester

- (3) **BTNY 305** (Fundamentals of Plant Classification)
 - (3) **CHM 112** (General Chemistry)
 - (3) **MA 224** (Introductory Analysis II)
 - (3) Social science or humanities elective
 - (3) Elective
-
- (15)

Sophomore Year**Third Semester**

- (3) **AGEC 217** (Economics)
- (4) **CHM 257** (Organic Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (4) **HORT 301** (Plant Physiology)
- (3) Elective

(17)

Fourth Semester

- (3) **AGRY 255** (Soil Science)
- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (3) **POL 223** (Introduction to Environmental Policy)
- (3) Directed elective
- (3) International understanding elective

(16)

Junior Year**Fifth Semester**

- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (4) **BIOL 221** (Introduction to Microbiology)
- (3) **PHIL 290** (Environmental Ethics)
- (3) Physics elective
- (3) Social science or humanities elective

(17)

Sixth Semester

- (2) **BIOL 286** (Introduction to Ecology)
- (2) **BIOL 287** (Organisms and Populations)
- (3) **STAT 503** (Statistical Methods for Biology)
- (3) Directed elective
- (3) Humanities elective
- (3) Written or oral communication elective

(16)

Senior Year**Seventh Semester**

- (3) **AGEC 406** (Natural Resource and Environmental Economics)
- (3) **ASM 336** (Environmental Systems Management)
- (4) **BTNY 316** (Plant Anatomy)
- (3) **BTNY 498** (Research in Plant Science)
- (3) Social science or humanities elective (300+ level)

(16)

Eighth Semester

- (8) Directed electives
- (3) Humanities elective
- (6) Electives

(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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (4) **CHM 115** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **MA 223** (Introductory Analysis I)

(16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (4) **CHM 116** (General Chemistry)
- (3) **MA 224** (Introductory Analysis II)
- (3) Core economics elective
- (3) Elective

(17)

Sophomore Year

Third Semester

- (4) **CHM 257** (Organic Chemistry)
- (1) **CHM 257L** (Organic Chemistry Laboratory)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Soil science elective A
- (3) Soil science or forest soils elective
- (3) Elective

(17)

Fourth Semester

- (3) **AGRY 290** (Introduction to Environmental Science)
- (4) **PHYS 220** (General Physics)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Humanities elective
- (3) Plant science elective B

(16)

Junior Year

Fifth Semester

- (3) **AGRY 385** (Environmental Soil Chemistry)
- (4) **PHYS 221** (General Physics)
- (3) Directed elective A-E
- (3) Humanities elective
- (3) International understanding elective

(16)

Sixth Semester

- (3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D
- (3) Directed elective A-E
- (3) Engineering elective C
- (3) Plant science elective B
- (3) Social science or humanities elective
- (3) Written or oral communication elective

(18)

Senior Year

Seventh Semester

- (3) **AGRY 349** (Soil Ecology)
- (3) **AGRY 465** (Soil Physical Properties)
- (1) **AGRY 498** (Agronomy Senior Seminar)
- (3) **AGRY 565** (Soil Classification, Genesis, and Survey)
- (3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D
- (3) Social science or humanities elective (300+ level)

(16)

Eighth Semester

- (3) Additional biochemistry, biological sciences, chemistry, mathematics, or physics elective D
- (6) Directed electives A-E
- (3) Social science elective
- (4) Electives

(16)

Farm Management

Farm management prepares people for managing the home farm, professional farm management, or understanding the challenge of managing a farm. Emphasis is placed on production, finan-

cial, marketing, and management strategies in this Department of Agricultural Economics curriculum.

Credit Hours Required for Graduation: 130 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
 - (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
 - (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **ENGL 106** (First-Year Composition)
 - (4) Biological sciences elective
 - (3) Introduction to calculus or introductory analysis elective
-
- (16)

Second Semester

- (3) **AGEC 217** (Economics)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (4) Biological sciences elective
 - (3) Humanities elective
 - (3) Elective
-
- (16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
 - (1) **AGEC 298** (Sophomore Seminar)
 - (3) **CHM 111** (General Chemistry)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Humanities elective
 - (3) Production agriculture elective
-
- (16)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
 - (3) **ECON 251** (Microeconomics)
 - (3) Production agriculture elective
 - (3) Social science elective
 - (3) Written or oral communication elective
 - (3) Elective
-
- (18)

Junior Year

Fifth Semester

- (2) **AGEC 321** (Futures and Options Market Applications)
 - (1) Grain and grain products marketing or livestock and meat marketing elective
 - (3) Introductory accounting or accounting for farm business planning elective
 - (3) Quantitative techniques for firm decision making or applied econometrics elective
 - (3) Written or oral communication elective
 - (3) Elective
-
- (15)

Sixth Semester

- (3) **AGEC 310** (Farm Organization)
 - (3) Economics elective
 - (3) Mathematics or sciences elective
 - (3) Production agriculture elective
 - (3) Social science or humanities elective
 - (3) Elective
-
- (18)

Senior Year***Seventh Semester***

- (4) **AGEC 411** (Farm Management)
- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) Economics elective
- (3) Production agriculture elective
- (3) Social science, humanities, or international understanding elective

(17)

Eighth Semester

- (2) Mathematics or sciences elective
- (3) Production agriculture elective
- (3) Social science or humanities elective (300+ level)
- (6) Electives

(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. The emphasis is on 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: 137 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (1) **FNR 196** (Freshman Natural Resources Seminar)
- (3) **MA 223** (Introductory Analysis I)

(15)

Second Semester

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **FNR 103** (Introduction to Environmental Conservation)
- (3) **MA 224** (Introductory Analysis II)

(17)

Sophomore Year***Third Semester***

- (3) **AGEC 217** (Economics)
- (3) **FNR 225** (Dendrology)
- (3) **FNR 230** (The World's Forests and Society)
- (3) **FNR 241** (Ecology and Systematics of Fishes and Mammals)
- (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)
- (3) **STAT 301** (Elementary Statistical Methods)

(16)

Fourth Semester

- (2) **BIOL 286** (Introduction to Ecology)
- (3) **FNR 210** (Natural Resource Information Management)
- (3) **FNR 251** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (1) **FNR 252** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (3) **FNR 351** (Aquatic Sampling Techniques)
- (3) Soil science or forest soils elective

(15)

Summer Session

- (2) **FNR 370** (Natural Resources Practicum)
 (4) **FNR 371** (Fisheries and Aquatic Sciences Practicum)
 (6)

Junior Year

Fifth Semester

- (3) **BTNY 555** (Aquatic Botany)
 (3) **FNR 331** (Forest Ecosystems)
 (3) **FNR 365** (Natural Resources Issues, Policy, and Administration)
 (3) **FNR 406** (Natural Resource and Environmental Economics)
 (3) Physical sciences elective
 (3) Social science or humanities elective
 (18)

Sixth Semester

- (3) **FNR 305** (Conservation Genetics)
 (3) **FNR 375** (Human Dimensions of Natural Resource Management)
 (3) Fish ecology or fish physiology elective
 (3) Physical sciences elective
 (3) Specialization elective
 (3) Written or oral communication elective
 (18)

Senior Year

Seventh Semester

- (3) **FNR 545** (Fisheries Management)
 (3) Ethics and animals or environmental ethics elective
 (3) Humanities elective
 (3) Limnology or watershed hydrology, ecology, and management elective
 (3) Specialization elective
 (15)

Eighth Semester

- (3) **FNR 408** (Ecosystem Management Practice)
 (3) **FNR 523** (Aquaculture)
 (3) Social science or humanities elective
 (3) Specialization elective
 (5) Electives
 (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
 (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
 (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 (4) **ENGL 106** (First-Year Composition)
 (4) Biological sciences elective
 (3) Introduction to calculus or introductory analysis elective
 (16)

Second Semester

- (3) **AGEC 217** (Economics)
 (3) **COM 114** (Fundamentals of Speech Communication)
 (4) Biological sciences elective
 (3) Humanities elective
 (3) Elective
 (16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
- (1) **AGEC 298** (Sophomore Seminar)
- (3) **CHM 111** (General Chemistry)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Food business management elective
- (3) Social science elective

(16)

Fourth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
- (3) **CHM 112** (General Chemistry)
- (3) **MGMT 200** (Introductory Accounting)
- (3) Food business management or food science elective
- (3) Written or oral communication elective

(15)

Junior Year

Fifth Semester

- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) **AGEC 426** (Marketing Management of Agricultural Business)
- (3) **ECON 251** (Microeconomics)
- (3) Social science, humanities, or international understanding elective
- (3) Elective

(16)

Sixth Semester

- (3) **AGEC 333** (Food Distribution — A Retailing Perspective)
- (3) Food business management elective
- (3) Humanities elective
- (3) Mathematics or sciences elective
- (3) Written or oral communication elective
- (3) Elective

(18)

Senior Year

Seventh Semester

- (3) Economics elective
- (3) Food business management elective
- (3) Quantitative techniques for firm decision making or applied econometrics elective
- (3) Social science or humanities elective
- (4) Electives

(16)

Eighth Semester

- (3) **AGEC 430** (Agricultural and Food Business Strategy)
- (3) **FS 443** (Food Processing III)
- (3) Food business management elective
- (2) Mathematics or sciences elective
- (3) Social science or humanities elective (300+ level)
- (3) Elective

(17)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 111** (Fundamentals of Biology I)
- (4) **CHM 115** (General Chemistry)
- (3) **FS 161** (Science of Food)
- (3) **MA 223** (Introductory Analysis I)
- (1) Elective

(16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (4) **CHM 116** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **MA 224** (Introductory Analysis II)
- (1) Elective

(16)

Sophomore Year

Third Semester

- (3) **COM 114** (Fundamentals of Speech Communication)
 - (1) **FS 298** (Sophomore Seminar)
 - (3) **MGMT 200** (Introductory Accounting)
 - (4) **PHYS 220** (General Physics)
 - (3) Statistics elective
 - (3) Written or oral communication elective
-
- (17)

Fourth Semester

- (4) **BIOL 221** (Introduction to Microbiology)
 - (0) **FS 201** (Problem Solving Using Mathematics)
 - (2) **FS 245** (Food Packaging)
 - (3) **OLS 252** (Human Relations in Organizations)
 - (3) Economics elective
 - (3) Social science, humanities, or international understanding elective
-
- (15)

Junior Year

Fifth Semester

- (3) **ASM 420** (Electric Power and Controls)
 - (1) **FS 361** (Food Plant Sanitation)
 - (3) **FS 362** (Food Microbiology)
 - (3) **OLS 274** (Applied Leadership)
 - (3) Management elective
 - (3) Restricted foods elective
-
- (16)

Sixth Semester

- (3) **FS 341** (Food Processing I)
 - (3) Humanities elective
 - (6) Management electives
 - (3) Written or oral communication elective
 - (2) Elective
-
- (17)

Senior Year

Seventh Semester

- (3) **FS 442** (Food Processing II)
 - (1) **FS 444** (Statistical Process Control)
 - (1) **FS 482** (Food Science Senior Seminar)
 - (3) Restricted foods elective
 - (3) Social science elective (300+ level)
 - (6) Social science, humanities, or international understanding electives
-
- (17)

Eighth Semester

- (3) **FS 443** (Food Processing III)
 - (2) **FS 446** (Food Process Automation)
 - (1) Food regulations elective
 - (3) Humanities elective
 - (3) Management elective
 - (4) Electives
-
- (16)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 111** (Fundamentals of Biology I)
 - (4) **CHM 115** (General Chemistry)
 - (3) **FS 161** (Science of Food)
 - (3) **MA 223** (Introductory Analysis I)
 - (1) Elective
-
- (16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
 - (4) **CHM 116** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 224** (Introductory Analysis II)
 - (1) Elective
-
- (16)

Sophomore Year

Third Semester

- (4) **BIOL 221** (Introduction to Microbiology)
 - (3) **CHM 255** (Organic Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (1) **FS 298** (Sophomore Seminar)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Written or oral communication elective
-
- (17)

Fourth Semester

- (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (3) **CHM 256** (Organic Chemistry)
 - (0) **FS 201** (Problem Solving Using Mathematics)
 - (2) **FS 245** (Food Packaging)
 - (4) **PHYS 220** (General Physics)
 - (3) Written or communication elective
-
- (16)

Junior Year

Fifth Semester

- (1) **FS 361** (Food Plant Sanitation)
 - (3) **FS 362** (Food Microbiology)
 - (2) **FS 363** (Food Microbiology Laboratory)
 - (3) Economics elective
 - (3) Social science, humanities, or international understanding elective
 - (3) Elective
-
- (15)

Sixth Semester

- (4) **CHM 224** (Introductory Quantitative Analysis)
 - (3) **F&N 315** (Fundamentals of Nutrition)
 - (3) **FS 341** (Food Processing I)
 - (4) **FS 453** (Food Chemistry)
 - (3) Social science elective
-
- (17)

Senior Year

Seventh Semester

- (3) **FS 442** (Food Processing II)
 - (1) **FS 444** (Statistical Process Control)
 - (1) **FS 482** (Food Science Senior Seminar)
 - (6) Humanities electives
 - (5) Electives
-
- (16)

Eighth Semester

- (3) **F&N 534** (Human Sensory Systems and Food Evaluation)
 - (3) **FS 443** (Food Processing III)
 - (4) **FS 467** (Food Analysis)
 - (1) Food regulations elective
 - (3) Social science or humanities elective
 - (3) Social science or humanities elective (300+ level)
-
- (17)

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. The emphasis is on sustainable management of natural resource systems — focusing on forests, watersheds, and associated flora and fauna to meet the needs of society.

ment of Forestry and Natural Resources curriculum has common core requirements with the fisheries and aquatic sciences, natural resources, and wildlife curricula. The emphasis is on 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: 138 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (1) **FNR 196** (Freshman Natural Resources Seminar)
- (3) **MA 223** (Introductory Analysis I)

(15)

Second Semester

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **FNR 103** (Introduction to Environmental Conservation)
- (3) **MA 224** (Introductory Analysis II)

(17)

Sophomore Year

Third Semester

- (3) **FNR 225** (Dendrology)
- (3) **FNR 230** (The World's Forests and Society)
- (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Microeconomics or economics elective
- (3) Written or oral communication elective

(16)

Fourth Semester

- (3) **AGRY 270** (Forest Soils)
- (2) **BIOL 286** (Introduction to Ecology)
- (3) **FNR 210** (Natural Resource Information Management)
- (1) **FNR 252** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (3) **FNR 353** (Natural Resources Assessment)
- (3) Social science or humanities elective

(15)

Summer Session

- (2) **FNR 370** (Natural Resources Practicum)
- (4) **FNR 372** (Forestry Practicum)

(6)

Junior Year

Fifth Semester

- (3) **FNR 331** (Forest Ecosystems)
- (3) **FNR 339** (Principles of Silviculture)
- (3) **FNR 357** (Fundamental Remote Sensing)
- (3) **FNR 365** (Natural Resources Issues, Policy, and Administration)
- (3) **FNR 406** (Natural Resource and Environmental Economics)
- (2) Botany elective

(17)

Sixth Semester

- (3) **FNR 355** (Quantitative Methods for Resource Management)
- (3) **FNR 375** (Human Dimensions of Natural Resource Management)
- (3) **FNR 407** (Forest Economics)
- (3) Social science or humanities elective
- (3) Specialization elective
- (3) Elective

(18)

Senior Year***Seventh Semester***

- (3) **FNR 409** (Timber Management)
- (1) **FNR 434** (Tree Physiology)
- (3) Ethics elective
- (1) Forest watershed management or range management elective
- (3) Humanities elective
- (3) Specialization elective
- (3) Elective

(17)

Eighth Semester

- (3) **FNR 408** (Ecosystem Management Practice)
- (3) Forestry elective
- (3) Social science or humanities elective
- (6) Specialization electives
- (2) Elective

(17)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **HORT 101** (Fundamentals of Horticulture)
- (3) Calculus elective

(17)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (1) **HORT 110** (Survey of Horticulture)
- (3) **HORT 201** (Plant Propagation)
- (3) Humanities elective
- (3) Statistics elective

(17)

Sophomore Year***Third Semester***

- (3) **AGEC 217** (Economics)
- (3) **AGRY 255** (Soil Science)
- (4) **CHM 257** (Organic Chemistry)
- (3) Social science elective
- (3) Elective

(16)

Fourth Semester

- (3) **AGRY 320** (Genetics)
- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) Humanities elective
- (3) Elective

(16)

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

Junior Year***Fifth Semester***

- (4) **HORT 301** (Plant Physiology)
- (3) **HORT 350** (Biotechnology in Agriculture)
- (3) Career elective
- (3) Introductory accounting or management methods for agricultural business elective
- (3) Written or oral communication elective

(16)

Sixth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
- (3) **BTNY 304** (Introductory Weed Science)
- (3) **HORT 401** (Horticultural Production Technologies)
- (3) Career elective
- (3) Elective

(15)

Senior Year***Seventh Semester***

- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (4) **HORT 435** (Principles of Marketing and Management for Horticultural Businesses)
- (3) Career elective
- (3) Horticultural production electives
- (3) Social science or humanities elective (300+ level)

(16)

Eighth Semester

- (1) **HORT 445** (Strategic Analysis of Horticulture Production and Marketing)
- (1) **HORT 513** (Nutrition of Horticulture Crops)
- (1) **HORT 541** (Postharvest Technology of Fruit and Vegetables)
- (3) Business elective
- (6) Career electives
- (3) Social science or humanities elective
- (2) Elective

(17)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **HORT 101** (Fundamentals of Horticulture)
- (3) Calculus elective

(17)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (1) **HORT 110** (Survey of Horticulture)
- (3) **HORT 201** (Plant Propagation)
- (3) Humanities elective
- (3) Statistics elective

(17)

* The following substitutions are recommended for students anticipating graduate studies: CHM 115 and 116 for CHM 111 and 112; CHM 255, 255L, 256, and 256L for CHM 257 and 257L; PHYS 220 and 221 for PHYS 214. Mathematics competence through MA 162 also is recommended.

† A minimum of eight weeks (320 hours) of employment is required in a technical or research-oriented facility before graduation.

Sophomore Year**Third Semester**

- (3) **AGEC 217** (Economics)
 - (3) **AGRY 255** (Soil Science)
 - (4) **CHM 257** (Organic Chemistry)
 - (1) **CHM 257L** (Organic Chemistry Laboratory)
 - (3) Plant diversity elective
 - (3) Elective
-
- (17)

Fourth Semester

- (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (3) **BTNY 301** (Introductory Plant Pathology)
 - (3) **PHYS 214** (The Nature of Physics)
 - (3) Career elective
 - (3) Social science elective
-
- (16)

Junior Year**Fifth Semester**

- (3) **AGRY 320** (Genetics)
 - (1) **AGRY 321** (Genetics Laboratory)
 - (4) **HORT 301** (Plant Physiology)
 - (2) Mathematics or sciences elective
 - (3) Social science or humanities elective
 - (3) Elective
-
- (16)

Sixth Semester

- (2) **ENTM 206** (General Entomology)
 - (1) **ENTM 207** (General Entomology Laboratory)
 - (3) **HORT 401** (Horticultural Production Technologies)
 - (3) **HORT 491** (Special Assignments in Horticulture)
 - (3) Humanities elective
 - (3) Mathematics or sciences elective
-
- (15)

Senior Year**Seventh Semester**

- (3) **HORT 350** (Biotechnology in Agriculture)
 - (1) **HORT 492** (Horticultural Science Capstone Seminar)
 - (3) Career elective
 - (3) Horticultural production elective
 - (3) Social science or humanities elective
 - (3) Written or oral communication elective
-
- (16)

Eighth Semester

- (1) **HORT 513** (Nutrition of Horticulture Crops)
 - (1) **HORT 515** (Plant Cell, Tissue, and Organ Culture)
 - (1) **HORT 541** (Postharvest Technology of Fruit and Vegetables)
 - (6) Career electives
 - (3) Social science or humanities elective (300+ level)
 - (4) Electives
-
- (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 Agri-

culture 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

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

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) Agricultural elective
-
- (15)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
 - (3) **CHM 112** (General Chemistry)
 - (3) **MA 220** (Introduction to Calculus)
 - (3) Agricultural elective
 - (3) Elective
-
- (16)

Sophomore Year***Third Semester***

- (3) **AGEC 217** (Economics)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Agricultural elective
 - (3) Computer applications elective
 - (3) Mathematics or sciences elective
 - (3) Social science elective
-
- (18)

Fourth Semester

- (3) **STAT 301** (Elementary Statistical Methods)
 - (6) Agricultural electives
 - (3) Humanities elective
 - (4) Mathematics or sciences electives
-
- (16)

Junior Year***Fifth Semester***

- (3) Agricultural elective (300+ level)
 - (3) Humanities elective
 - (7) Mathematics or sciences electives
 - (3) Written or oral communication elective
-
- (16)

Sixth Semester

- (6) Agricultural electives (300+ level)
 - (3) Mathematics or sciences elective
 - (3) Social science or humanities elective
 - (5) Electives
-
- (17)

Senior Year***Seventh Semester***

- (6) Agricultural electives (300+ level)
 - (3) Social science or humanities elective
 - (3) Written or oral communication elective
 - (5) Electives
-
- (17)

Eighth Semester

- (6) Agricultural electives
 - (3) Social science or humanities elective (300+ level)
 - (3) Written or oral communication elective
 - (3) Elective
-
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) **MA 223** (Introductory Analysis I)
- (3) Directed option elective
- (1) Elective
- (15)

Second Semester

- (1) **AGRY 350** (Global Awareness)
- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **MA 224** (Introductory Analysis II)
- (3) Directed option elective
- (18)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
- (3) **AGRY 255** (Soil Science)
- (1) **AGRY 398** (Agronomy Seminar)
- (4) **CHM 257** (Organic Chemistry)
- (3) Foreign language elective
- (3) Elective
- (17)

Fourth Semester

- (3) **AGRY 365** (Soil Fertility)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Foreign language elective
- (5) Mathematics or sciences electives
- (17)

Junior Year

Fifth Semester

- (3) **AGEC 340** (Economics of World Development)
- (3) **AGRY 320** (Genetics)
- (3) **PHYS 214** (The Nature of Physics)
- (4) Directed option electives
- (3) Foreign language elective
- (16)

Sixth Semester

- (3) **AGRY 285** (World Crop Adaptation and Distribution)
- (3) **AGRY 335** (Weather and Climate)
- (2) Conversation language elective
- (2) Mathematics or sciences elective
- (3) Social science elective
- (3) Written or oral communication elective
- (16)

Senior Year

Seventh Semester

- (3) **AGEC 450** (International Agricultural Trade)
- (1) **AGRY 498** (Agronomy Senior Seminar)
- (3) **AGRY 570** (Agronomy in International Development)
- (3) **AGRY 598** (Special Problems)
- (3) Social science or humanities elective (300+ level)
- (3) Elective
- (16)

Eighth Semester

- (4) Directed option electives
- (3) Social science or humanities elective
- (9) Electives
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **A&D 105** (Design I)
 - (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **L A 101** (Survey of Landscape Architecture)
 - (3) **L A 116** (Graphic Communication for Students of Landscape Architecture and Design)
 - (4) Biological sciences elective
- (17)

Second Semester

- (4) **ENGL 106** (First-Year Composition)
 - (3) **L A 216** (Landscape Architectural Design I)
 - (1) **L A 250** (Architectural Design)
 - (3) Basic drawing or design elective
 - (4) Biological sciences elective
 - (3) Statistics or calculus elective‡
- (18)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (4) **HORT 217** (Woody Landscape Plants)
 - (3) **L A 227** (Planting Design I)
 - (4) **L A 246** (Site Systems I)
 - (3) Elective
- (17)

Fourth Semester

- (3) **ASM 215** (Surveying)
 - (3) **L A 117** (Computer Technology in Design)
 - (3) **L A 166** (History and Theory of Landscape Architecture)
 - (4) **L A 226** (Landscape Architectural Design II)
 - (3) Humanities elective
- (16)

Junior Year

Fifth Semester

- (3) **HORT 317** (Landscape Contracting and Management)
 - (5) **L A 316** (Landscape Architectural Design III)
 - (3) **L A 325** (Planting Design II)
 - (3) **L A 346** (Site Systems II)
 - (3) Elective
- (17)

Sixth Semester

- (5) **L A 326** (Landscape Architectural Design IV)
 - (4) **L A 356** (Site Systems III)
 - (3) Mathematics or sciences elective
 - (3) Social science or humanities elective
- (15)

* 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 L A 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 159 advanced credit examination or by enrolling in, and satisfactorily completing, MA 153 and 154, or MA 159. These courses are not applicable as credits towards graduation.

Internship Period (Cooperative Employment)

(0) **L A 390** (Professional Cooperative Programs in Landscape Architecture)*

Senior Year

Seventh Semester

- (5) **L A 416** (Landscape Architectural Design V)
- (2) **L A 476** (Professional Practice of Landscape Architecture)
- (3) Mathematics or sciences elective
- (3) Social science or humanities elective (300+ level)
- (3) Written or oral communication elective

(16)

Eighth Semester

- (5) **L A 426** (Capstone Course in Landscape Architecture)
- (3) Mathematics or sciences elective
- (3) Social science elective
- (5) Electives

(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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 111** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **HORT 101** (Fundamentals of Horticulture)

(15)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (1) **HORT 110** (Survey of Horticulture)
- (3) **HORT 201** (Plant Propagation)
- (3) Calculus elective
- (3) Humanities elective

(16)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
- (4) **CHM 257** (Organic Chemistry)
- (4) **HORT 217** (Woody Landscape Plants)
- (3) Social science elective
- (3) Statistics elective

(17)

Fourth Semester

- (3) **AGRY 255** (Soil Science)
- (3) **ASM 215** (Surveying)
- (3) Introductory accounting or management methods for agricultural business elective
- (3) Written or oral communication elective
- (3) Elective

(15)

* Students must register for two semesters of L A 390, 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.

† 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***

- (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
 - (3) **HORT 218** (Herbaceous Landscape Plants)
 - (4) **HORT 301** (Plant Physiology)
 - (3) **L A 116** (Graphic Communication for Students of Landscape Architecture and Design)
 - (3) Humanities elective
- (16)

Sixth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
 - (3) **AGRY 210** (Fundamentals of Turfgrass Culture)
 - (3) **BTNY 301** (Introductory Plant Pathology)
 - (4) **HORT 315** (Landscape Design and Construction I)
 - (3) Social science or humanities elective
- (16)

Senior Year***Seventh Semester***

- (4) **HORT 316** (Landscape Design and Construction II)
 - (3) **HORT 317** (Landscape Contracting and Management)
 - (1) **HORT 411** (Nursery Crops)
 - (4) **HORT 435** (Principles of Marketing and Management for Horticultural Businesses)
 - (3) Social science or humanities elective (300+ level)
 - (3) Elective
- (18)

Eighth Semester

- (3) **BTNY 304** (Introductory Weed Science)
- (3) **HORT 425** (Landscape Horticulture Capstone Project)
- (1) **HORT 513** (Nutrition of Horticultural Crops)
- (6) Career electives
- (1) Diseases of trees and shrubs or diseases of ornamentals elective
- (3) Supervision/personnel elective

(17)

Natural Resources

The natural resources program prepares students for professional careers in natural resource research and management, information and education, and interdisciplinary investigations of environmental problems. Students apply biological, ecological, economic, and social knowledge to address natural resource issues and policy. 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 wildlife curricula. The emphasis is on 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: 137 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (1) **FNR 196** (Freshman Natural Resources Seminar)
 - (3) **MA 223** (Introductory Analysis I)
- (15)

Second Semester

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **FNR 103** (Introduction to Environmental Conservation)
- (3) **MA 224** (Introductory Analysis II)

(17)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
- (3) **FNR 225** (Dendrology)
- (3) **FNR 230** (The World's Forests and Society)
- (3) **FNR 241** (Ecology and Systematics of Fishes and Mammals)
- (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)
- (3) **STAT 301** (Elementary Statistical Methods)

(16)

Fourth Semester

- (3) **AGRY 270** (Forest Soils)
- (2) **BIOL 286** (Introduction to Ecology)
- (3) **FNR 210** (Natural Resource Information Management)
- (3) **FNR 251** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (1) **FNR 252** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (3) Natural resources assessment or aquatic sampling techniques elective

(15)

Summer Session

- (2) **FNR 370** (Natural Resources Practicum)
- (4) Fisheries and aquatic sciences, forestry, or wildlife practicum elective

(6)

Junior Year

Fifth Semester

- (3) **FNR 331** (Forest Ecosystems)
- (3) **FNR 339** (Principles of Silviculture)
- (3) **FNR 365** (Natural Resources Issues, Policy, and Administration)
- (3) **FNR 406** (Natural Resource and Environmental Economics)
- (2) Botany elective
- (3) Written or oral communication elective

(17)

Sixth Semester

- (3) **FNR 341** (Wildlife Habitat Management)
- (3) **FNR 375** (Human Dimensions of Natural Resource Management)
- (3) Humanities elective
- (3) Specialization elective
- (3) Elective

(15)

Senior Year

Seventh Semester

- (3) **BIOL 483** (Environmental and Conservation Biology)
- (3) Ethics elective
- (3) Limnology or watershed hydrology, ecology, and management elective
- (6) Social science or humanities electives
- (3) Specialization elective

(18)

Eighth Semester

- (3) **FNR 408** (Ecosystem Management Practice)
- (4) Natural resources elective
- (3) Social science or humanities elective
- (3) Specialization elective
- (5) Electives

(18)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **MA 223** (Introductory Analysis I)
 - (4) Biological sciences elective
 - (3) Elective
-
- (17)

Second Semester

- (3) **CHM 112** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 224** (Introductory Analysis II)
 - (4) Biological sciences elective
 - (3) Elective
-
- (17)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (4) **CHM 257** (Organic Chemistry)
 - (3) **NRES 255** (Soil Science)
 - (3) Social science elective
 - (3) Elective
-
- (16)

Fourth Semester

- (2) **BIOL 286** (Introduction to Ecology)
 - (2) **BIOL 287** (Organisms and Populations)
 - (1) **NRES 200** (Introduction to Environmental Careers)
 - (3) **NRES 290** (Introduction to Environmental Science)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) International understanding elective
 - (3) Policy elective
-
- (17)

Junior Year

Fifth Semester

- (3) **NRES 230** (Survey of Meteorology)
 - (3) Biochemistry, biology, chemistry, mathematics, physics, or statistics elective
 - (8) Directed electives
 - (3) Humanities elective
-
- (17)

Sixth Semester

- (3) Biochemistry, biology, chemistry, mathematics, physics, or statistics elective
 - (6) Directed electives
 - (3) Humanities elective
 - (3) Elective
-
- (15)

Senior Year

Seventh Semester

- (3) Biochemistry, biology, chemistry, mathematics, physics, or statistics elective
 - (3) Option elective
 - (3) Social science or humanities elective
 - (3) Written or oral communication elective
 - (6) Electives
-
- (18)

Eighth Semester

- (6) Directed electives
 - (3) Social science or humanities elective (300+ level)
 - (6) Electives
-
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (1) **BTNY 101** (Plant Science Lectures)
 - (4) **BTNY 210** (Introduction to Plant Science)
 - (4) **CHM 115** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **MA 223** (Introductory Analysis I)
- (16)

Second Semester

- (4) **CHM 116** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 224** (Introductory Analysis II)
 - (3) Directed elective
 - (3) Elective
- (17)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (3) **CHM 255** (Organic Chemistry)
 - (1) **CHM 255L** (Organic Chemistry Laboratory)
 - (3) Social science elective
 - (3) Social science or humanities elective
 - (3) Elective
- (16)

Fourth Semester

- (3) **AGRY 320** (Genetics)
 - (1) **AGRY 321** (Genetics Laboratory)
 - (4) **BIOL 221** (Introduction to Microbiology)
 - (3) **BTNY 305** (Fundamentals of Plant Classification)
 - (3) **CHM 256** (Organic Chemistry)
 - (1) **CHM 256L** (Organic Chemistry Laboratory)
 - (3) Written or oral communication elective
- (18)

Junior Year

Fifth Semester

- (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (4) **BTNY 316** (Plant Anatomy)
 - (4) **HORT 301** (Plant Physiology)
 - (4) **PHYS 220** (General Physics)
- (16)

Sixth Semester

- (4) **PHYS 221** (General Physics)
 - (3) **STAT 503** (Statistical Methods for Biology)
 - (3) Directed elective
 - (4) Ecology elective
 - (3) Humanities elective
- (17)

Senior Year***Seventh Semester***

- (3) **BTNY 498** (Research in Plant Science)
- (4) Directed elective
- (3) Social science or humanities elective
(300+ level)
- (5) Electives
- (15)

Eighth Semester

- (3) Directed elective
- (3) Humanities elective
- (3) International understanding elective
- (6) Electives
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **CHM 115** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (4) Fundamentals of biology or introduction to plant science elective
- (3) Plane analytic geometry and calculus or introductory analysis elective
- (16)

Second Semester

- (4) **CHM 116** (General Chemistry)
- (2) Directed option elective
- (4) Fundamentals of biology or introduction to plant science elective
- (3) Plane analytic geometry and calculus or introductory analysis elective
- (3) Elective
- (16)

Sophomore Year***Third Semester***

- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (1) **AGRY 398** (Agronomy Seminar)
- (3) Directed option elective
- (4) General physics or mechanics elective
- (3) Social science elective
- (15)

Fourth Semester

- (4) **CHM 257** (Organic Chemistry)
- (1) **CHM 257L** (Organic Chemistry Laboratory)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Core economics elective
- (3) Directed option elective
- (4) General physics or electricity and optics elective
- (18)

* Professional internship in plant genetics or plant breeding required.

Junior Year***Fifth Semester***

- (3) **AGRY 255** (Soil Science)
 - (3) **BCHM 307** (Biochemistry)
 - (1) **BCHM 309** (Biochemistry Laboratory)
 - (3) **BIOL 231** (Biology III: Cell Structure and Function)
 - (3) Social science or humanities elective
 - (3) Elective
- (16)

Sixth Semester

- (4) **BIOL 221** (Introduction to Microbiology)
- (4) Directed option elective
- (6) Humanities electives
- (3) Written or oral communication elective

(17)

Senior Year***Seventh Semester***

- (3) **AGRY 480** (Plant Genetics)
- (1) **AGRY 498** (Agronomy Senior Seminar)
- (3) **STAT 503** (Statistical Methods for Biology)
- (3) Directed elective
- (3) International understanding elective
- (3) Introduction to molecular biology or biotechnology in agriculture elective

(16)

Eighth Semester

- (3) **AGRY 520** (Principles and Methods of Plant Breeding)
- (3) Crop physiology and ecology or plant physiology elective
- (3) Social science or humanities elective (300+ level)
- (9) Electives

(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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **HORT 101** (Fundamentals of Horticulture)
- (3) Calculus elective

(17)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (1) **HORT 110** (Survey of Horticulture)
- (3) **HORT 201** (Plant Propagation)
- (3) **L A 166** (History and Theory of Landscape Architecture)
- (3) Humanities elective

(17)

* Internships or practica totaling at least six months, in an approved establishment, are required before graduation.

Sophomore Year**Third Semester**

- (3) **AGRY 255** (Soil Science)
- (4) **CHM 257** (Organic Chemistry)
- (4) **HORT 217** (Woody Landscape Plants)
- (3) Statistics elective
- (2) Elective

(16)

Fourth Semester

- (3) **AGEC 217** (Economics)
- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) Career elective
- (3) Social science elective

(16)

Junior Year**Fifth Semester**

- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (3) **HORT 218** (Herbaceous Landscape Plants)
- (4) **HORT 301** (Plant Physiology)
- (3) Social science or humanities elective
- (3) Elective

(16)

Sixth Semester

- (3) **BTNY 305** (Fundamentals of Plant Classification)
- (3) **HORT 306** (History of Horticulture)
- (3) **HORT 401** (Horticultural Production Technologies)
- (3) Social science or humanities elective (300+ level)
- (3) Written or oral communication elective

(15)

Senior Year**Seventh Semester**

- (3) **AGRY 320** (Genetics)
- (3) **HORT 317** (Landscape Contracting and Management)
- (1) **HORT 440** (Management Strategies in Public Horticulture)
- (3) Additional communication elective
- (3) Ecology/plant diversity elective
- (1) Horticultural production elective
- (3) Humanities elective

(17)

Eighth Semester

- (2) **HORT 491** (Special Assignments in Horticulture)
- (6) Career electives
- (3) Supervision/personnel elective
- (5) Electives

(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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
 - (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
 - (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 223** (Introductory Analysis I)
 - (4) Biological sciences elective
- (16)

Second Semester

- (3) **AGEC 217** (Economics)
 - (3) **MA 224** (Introductory Analysis II)
 - (4) Biological sciences elective
 - (3) Humanities elective
 - (3) Elective
- (16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
 - (1) **AGEC 298** (Sophomore Seminar)
 - (3) **CHM 111** (General Chemistry)
 - (3) **ECON 251** (Microeconomics)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (1) Research elective
 - (3) Elective
- (17)

Fourth Semester

- (3) **CHM 112** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **ECON 340** (Intermediate Microeconomic Theory)
 - (3) Humanities elective
 - (2) Research elective
 - (3) Elective
- (17)

Junior Year

Fifth Semester

- (3) Agricultural economics elective
 - (3) Economics elective
 - (3) Quantitative techniques for firm decision making or introduction to mathematical programming elective
 - (2) Research elective
 - (3) Social science or humanities elective (300+ level)
 - (3) Elective
- (17)

Sixth Semester

- (3) **AGEC 410** (Agricultural Policy)
 - (3) Experimental statistics or applied econometrics elective
 - (1) Research elective
 - (3) Social science elective
 - (3) Written or oral communication elective
 - (3) Elective
- (16)

Senior Year

Seventh Semester

- (3) **AGEC 450** (International Agricultural Trade)
 - (3) Agricultural prices or agricultural marketing and price analysis elective
 - (3) Social science, humanities, or international understanding elective
 - (3) Written or oral communication elective
 - (5) Electives
- (17)

Eighth Semester

- (3) Economics elective
 - (3) Social science or humanities elective
 - (8) Electives
- (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 agri-marketing, 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
- (1) **AGEC 202** (Spreadsheet Use in Agricultural Business)
- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **ENGL 106** (First-Year Composition)
- (4) Biological sciences elective
- (3) Introduction to calculus or introductory analysis elective
- (16)

Second Semester

- (3) **AGEC 217** (Economics)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (4) Biological sciences elective
- (3) Humanities elective
- (3) Elective
- (16)

Sophomore Year

Third Semester

- (3) **AGEC 220** (Marketing Farm Products)
- (1) **AGEC 298** (Sophomore Seminar)
- (3) **CHM 111** (General Chemistry)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Social science, humanities, or international understanding elective
- (3) Written or oral communication elective
- (16)

Fourth Semester

- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
- (3) **CHM 112** (General Chemistry)
- (3) **ECON 251** (Microeconomics)
- (3) **MGMT 200** (Introductory Accounting)
- (3) Elective
- (15)

Junior Year

Fifth Semester

- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) Quantitative techniques for firm decision making or applied econometrics elective
- (3) Humanities elective
- (3) Specialty elective
- (3) Written or oral communication elective
- (2) Elective
- (18)

Sixth Semester

- (3) **AGEC 426** (Marketing Management for Agricultural Business)
- (3) **MGMT 455** (Legal Background for Business I)
- (3) Mathematics or sciences elective
- (3) Social science elective
- (3) Written or oral communication elective
- (3) Elective
- (18)

Senior Year

Seventh Semester

- (4) **AGEC 431** (Advanced Agri-Sales and Marketing)
- (3) Agricultural business management elective
- (3) Economics elective
- (3) Social science or humanities elective (300+ level)
- (3) Specialty elective
- (16)

Eighth Semester

- (3) **AGEC 430** (Agricultural and Food Business Strategy)
- (2) Mathematics or sciences elective
- (3) Social science or humanities elective
- (3) Specialty elective
- (6) Electives
- (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 inter-

ests. 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (3) **AGRY 105** (Crop Production)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (3) Introduction to calculus or introductory analysis elective
- (3) Elective
- (17)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) Core economics elective
- (3) Social science elective
- (17)

Sophomore Year

Third Semester

- (3) **AGRY 255** (Soil Science)
- (1) **AGRY 398** (Agronomy Seminar)
- (4) **CHM 257** (Organic Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Agronomy elective
- (3) Elective
- (17)

Fourth Semester

- (3) **AGRY 365** (Soil Fertility)
- (3) **EAS 111** (Physical Geology)
- (3) **STAT 301** (Elementary Statistical Methods)
- (3) Additional science elective
- (3) Humanities elective
- (3) Elective
- (18)

Junior Year***Fifth Semester***

- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) Additional science elective
- (3) Agronomy elective
- (3) Humanities elective
- (16)

Sixth Semester

- (3) **AGRY 335** (Weather and Climate)
- (3) Additional science elective
- (3) Agricultural economics, economics, or management elective
- (3) Written or oral communication elective
- (3) Elective
- (15)

Senior Year***Seventh Semester***

- (1) **AGRY 498** (Agronomy Senior Seminar)
- (3) Agronomy elective
- (3) Geographic information systems, global positioning systems, or remote sensing elective
- (3) International understanding elective
- (3) Social science or humanities elective (300+ level)
- (3) Written or oral communication elective
- (16)

Eighth Semester

- (3) **BTNY 304** (Introductory Weed Science)
- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (3) Agronomy elective
- (3) Social science or humanities elective
- (2) Elective
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year***First Semester***

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (3) **AGRY 105** (Crop Production)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (4) **CHM 115** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) **MA 223** (Introductory Analysis I)
- (19)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
- (4) **CHM 116** (General Chemistry)
- (3) **MA 224** (Introductory Analysis II)
- (3) Agronomy elective
- (3) Core economics elective
- (19)

Sophomore Year**Third Semester**

- (3) **AGRY 255** (Soil Science)
 - (1) **AGRY 398** (Agronomy Seminar)
 - (4) **CHM 257** (Organic Chemistry)
 - (1) **CHM 257L** (Organic Chemistry Laboratory)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Elective
-
- (15)

Fourth Semester

- (3) **AGRY 365** (Soil Fertility)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Additional science elective
 - (3) Agronomy elective
 - (6) Humanities electives
-
- (18)

Junior Year**Fifth Semester**

- (3) **AGRY 320** (Genetics)
 - (1) **AGRY 321** (Genetics Laboratory)
 - (4) **PHYS 220** (General Physics)
 - (3) Agronomy elective
 - (3) Social science or humanities elective
 - (3) Social science or humanities elective (300+ level)
-
- (17)

Sixth Semester

- (3) **AGRY 335** (Weather and Climate)
 - (3) **BTNY 302** (Plant Ecology)
 - (4) **PHYS 221** (General Physics)
 - (3) English elective (200+ level)
 - (3) Elective
-
- (16)

Senior Year**Seventh Semester**

- (1) **AGRY 498** (Agronomy Senior Seminar)
 - (4) Biochemistry or introduction to microbiology elective
 - (3) International understanding elective
 - (3) Science elective
 - (3) Social science elective
 - (3) Elective
-
- (17)

Eighth Semester

- (3) **AGRY 525** (Crop Physiology and Ecology)
 - (3) Agricultural economics, economics, or management elective
 - (3) Agricultural elective
 - (3) Crop protection elective
 - (1) Elective
-
- (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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year**First Semester**

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (1) **AGRY 110** (Survey of Turfgrass Culture)
 - (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (4) Fundamentals of biology or introduction to plant science elective
 - (3) Introduction to calculus or introductory analysis elective
-
- (16)

Second Semester

- (4) **BIOL 111** (Fundamentals of Biology II)
 - (3) **CHM 112** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Core economics elective
 - (3) Social science elective
-
- (16)

Sophomore Year***Third Semester***

- (3) **AGRY 255** (Soil Science)
 - (1) **AGRY 398** (Agronomy Seminar)
 - (4) **HORT 217** (Woody Landscape Plants)
 - (3) Humanities elective
 - (3) Management methods for agricultural business or introductory accounting elective
 - (3) Elective
-
- (17)

Fourth Semester

- (3) **AGRY 210** (Fundamentals of Turfgrass Culture)
 - (1) **AGRY 211** (Fundamentals of Turfgrass Culture Laboratory)
 - (3) **BTNY 304** (Introductory Weed Science)
 - (4) **CHM 257** (Organic Chemistry)
 - (3) Genetics or conservation genetics elective
 - (3) Humanities elective
-
- (17)

Junior Year***Fifth Semester***

- (3) **AGRY 349** (Soil Ecology)
 - (3) **AGRY 510** (Turfgrass Science)
 - (3) **BTNY 301** (Introductory Plant Pathology)
 - (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
 - (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Business or management elective
-
- (18)

Sixth Semester

- (3) **AGRY 365** (Soil Fertility)
 - (1) **BTNY 518** (Diseases of Landscape Trees and Shrubs)
 - (3) **PHYS 214** (The Nature of Physics)
 - (3) Business or management elective
 - (3) International understanding elective
 - (3) Elective
-
- (16)

Senior Year***Seventh Semester***

- (3) **AGRY 465** (Soil Physical Properties)
 - (1) **AGRY 498** (Agronomy Senior Seminar)
 - (3) **AGRY 512** (Integrated Turfgrass Systems)
 - (4) **HORT 435** (Principles of Marketing and Management for Horticultural Businesses)
 - (3) Written or oral communication elective
 - (3) Elective
-
- (17)

Eighth Semester

- (3) **AGRY 525** (Crop Physiology and Ecology)
 - (3) **BTNY 443** (Arthropods and Diseases of Turfgrass)
 - (3) Social science or humanities elective
 - (3) Social science or humanities elective (300+ level)
 - (3) Turf suggested elective
-
- (15)

Urban and Industrial Pest Control

The urban and industrial pest control 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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **ENGL 106** (First-Year Composition)
- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (4) Biology core elective
- (3) Calculus elective
- (3) Chemistry elective

(18)

Second Semester

- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **ENTM 210** (Introduction to Insect Behavior)
- (4) Biology core elective
- (3) Chemistry elective
- (3) Statistics elective

(16)

Sophomore Year

Third Semester

- (4) **BIOL 221** (Introduction to Microbiology)
- (4) **ENTM 335** (Introduction to Insect Identification)
- (1) **FS 361** (Food Plant Sanitation)
- (3) Economics elective
- (4) Organic chemistry elective

(16)

Fourth Semester

- (3) **BCHM 307** (Biochemistry)
- (1) **BCHM 309** (Biochemistry Laboratory)
- (2) **BIOL 286** (Introduction to Ecology)
- (3) Entomology elective
- (3) Social science, humanities, or international understanding elective
- (3) Written or communication elective

(15)

Summer Session

- (0) **ENTM 390** (Professional Experience Programs in Entomology)

Junior Year

Fifth Semester

- (2) **BCM 100** (Introduction to Construction)
- (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
- (3) **ENTM 515** (Insecticides)
- (3) **ENTM 521** (Urban and Industrial Insect Management)
- (3) Business elective
- (3) Social science or humanities elective

(17)

Sixth Semester

- (3) **ENTM 526** (Urban and Industrial Vertebrate Management)
- (3) **HTM 191** (Sanitation and Health in Foodservice, Lodging, and Tourism)
- (3) **OLS 331** (Occupational Safety and Health)
- (3) Directed communication elective
- (3) Social science or humanities elective (300+ level)

(15)

Senior Year

Seventh Semester

- (3) **AGRY 320** (Genetics)
- (3) Entomology elective
- (3) Humanities elective
- (3) Social science elective
- (6) Electives

(18)

Eighth Semester

- (6) Business electives
- (6) Directed communication electives
- (3) Humanities elective

(15)

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 Nat-

ural Resources curriculum has common core requirements with the fisheries and aquatic sciences, forestry, and natural resources curricula. The emphasis is on 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: 137 (See International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (4) **BIOL 110** (Fundamentals of Biology I)
 - (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (1) **FNR 196** (Freshman Natural Resources Seminar)
 - (3) **MA 223** (Introductory Analysis I)
- (15)

Second Semester

- (4) **BTNY 210** (Introduction to Plant Science)
 - (3) **CHM 112** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **FNR 103** (Introduction to Environmental Conservation)
 - (3) **MA 224** (Introductory Analysis II)
- (17)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
 - (3) **FNR 225** (Dendrology)
 - (3) **FNR 230** (The World's Forests and Society)
 - (3) **FNR 241** (Ecology and Systematics of Fishes and Mammals)
 - (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)
 - (3) **STAT 301** (Elementary Statistical Methods)
- (16)

Fourth Semester

- (3) **AGRY 270** (Forest Soils)
 - (2) **BIOL 286** (Introduction to Ecology)
 - (3) **FNR 210** (Natural Resource Information Management)
 - (3) **FNR 251** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
 - (1) **FNR 252** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
 - (3) **FNR 353** (Natural Resources Assessment)
- (15)

Summer Session

- (2) **FNR 370** (Natural Resources Practicum)
 - (4) **FNR 373** (Wildlife Practicum)
- (6)

Junior Year

Fifth Semester

- (3) **FNR 331** (Forest Ecosystems)
 - (3) **FNR 365** (Natural Resources Issues, Policy, and Administration)
 - (3) **FNR 406** (Natural Resource and Environmental Economics)
 - (2) Botany elective
 - (3) Social science or humanities elective
 - (3) Written or oral communication elective
- (17)

Sixth Semester

- (3) **FNR 341** (Wildlife Habitat Management)
 - (3) **FNR 375** (Human Dimensions of Natural Resource Management)
 - (3) Social science or humanities elective
 - (3) Specialization elective
 - (2) Wildlife elective
 - (3) Elective
- (17)

Senior Year

Seventh Semester

- (3) **FNR 547** (Vertebrate Population Dynamics)
- (2) **FNR 548** (Wildlife Investigational Techniques)
- (3) Ethics elective
- (3) Humanities elective
- (3) Specialization elective
- (3) Elective
- (17)

Eighth Semester

- (3) **FNR 408** (Ecosystem Management Practice)
- (3) Genetics elective
- (3) Social science or humanities elective
- (3) Specialization elective
- (3) Wildlife elective
- (2) Elective
- (17)

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 International Understanding, Multicultural Awareness, and Capstone Course requirements on page 25.)

Freshman Year

First Semester

- (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
- (4) **BIOL 110** (Fundamentals of Biology I)
- (3) **CHM 111** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (1) **FNR 196** (Freshman Natural Resources Seminar)
- (3) **MA 223** (Introductory Analysis I)
- (16)

Second Semester

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **CHM 112** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) **FNR 103** (Introduction to Environmental Conservation)
- (3) **MA 224** (Introductory Analysis II)
- (16)

Sophomore Year

Third Semester

- (2) **C&IT 135** (Personal Computing Technology and Applications)
- (3) **FNR 225** (Dendrology)
- (3) **IT 104** (Industrial Organization)
- (3) **MET 141** (Materials I)
- (3) **STAT 301** (Elementary Statistical Methods)
- (2) Elective
- (16)

Fourth Semester

- (3) **CGT 110** (Technical Graphics Communications)
- (3) **FNR 301** (Wood Products and Processing)
- (3) **IT 114** (Problem-Solving in Manufacturing)
- (3) Humanities elective
- (4) Physics elective
- (16)

Junior Year***Fifth Semester***

- (3) **ECON 210** (Principles of Economics)
 - (3) **ENGL 421** (Technical Writing: Engineering and Science Applications)
 - (3) **FNR 418** (Properties of Wood Related to Manufacturing)
 - (3) **IT 342** (Introduction to Statistical Quality)
 - (1) Mathematics or sciences elective
 - (3) Social science or humanities elective
- (16)

Sixth Semester

- (3) **FNR 311** (Wood Structure, Identification, and Properties)
- (3) **MET 242** (Manufacturing Processes II)
- (3) Humanities elective
- (3) Social science or humanities elective
- (5) Specialization electives

(17)

Senior Year***Seventh Semester***

- (3) **FNR 406** (Natural Resource and Environmental Economics)
 - (3) **FNR 425** (Secondary Wood Products Manufacturing)
 - (3) **IT 442** (Production Planning)
 - (3) **IT 450** (Production Cost Analysis)
 - (3) Social science or humanities elective
 - (3) Specialization elective
- (18)

Eighth Semester

- (3) **FNR 419** (Furniture and Cabinet Design and Manufacture)
- (3) **FNR 520** (Wood-Base Composites)
- (3) **IT 483** (Facility Design for Lean Manufacturing)
- (3) Specialization elective
- (3) Elective

(15)

Associate in Agriculture Degree Curricula**Agricultural Economics****Credit Hours Required for Graduation: 65****Freshman Year*****First Semester***

- (3) **AGEC 100** (Introductory Agricultural Business and Economics)
 - (1) **AGR 101** (Introduction to the College of Agriculture and Purdue University)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (6) Agricultural electives
 - (3) Mathematics or sciences elective
- (16)

Second Semester

- (4) **ENGL 106** (First-Year Composition)
- (3) Agricultural elective
- (3) Calculus or statistics elective
- (3) Economics elective
- (3) Mathematics or sciences elective

(16)

Sophomore Year***Third Semester***

- (6) Agricultural economics, economics, or management electives
 - (3) Agricultural elective
 - (3) Mathematics or sciences elective
 - (3) Social science or humanities elective
 - (2) Elective
- (17)

Fourth Semester

- (6) Agricultural economics, economics, or management electives
- (5) Agricultural electives
- (3) Mathematics or sciences elective
- (2) Elective

(16)

Agricultural Systems Management

Credit Hours Required for Graduation: 65

Freshman Year

First Semester

- (3) **ASM 104** (Introduction to Agricultural Systems)
- (3) **CHM 111** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (4) Biological sciences elective
- (3) Option elective

(17)

Second Semester

- (3) **AGEC 217** (Economics)
- (3) **ASM 231** (Computer Applications in Agriculture)
- (3) **CHM 112** (General Chemistry)
- (3) Calculus or statistics elective
- (3) Social science or humanities elective

(15)

Sophomore Year

Third Semester

- (3) **ASM 222** (Crop Production Equipment)
- (3) **ASM 345** (Power Units and Power Trains)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Farm organization or management methods for agricultural business elective
- (6) Option electives

(18)

Fourth Semester

- (3) **ASM 245** (Materials Handling and Processing)
- (1) **ASM 350** (Safety in Agriculture)
- (3) **ENGL 420** (Business Writing)
- (3) Marketing farm products or marketing management of agricultural business elective
- (3) Option elective
- (2) Elective

(15)

Agronomy

Credit Hours Required for Graduation: 65

Freshman Year

First Semester

- (3) **CHM 111** (General Chemistry)
- (3) **COM 114** (Fundamentals of Speech Communication)
- (3) Agricultural elective
- (4) Biology or botany elective
- (3) Elective

(16)

Second Semester

- (3) **CHM 112** (General Chemistry)
- (4) **ENGL 106** (First-Year Composition)
- (3) Agricultural elective
- (3) Agronomy elective
- (3) Statistics or calculus elective

(16)

Sophomore Year

Third Semester

- (3) **AGEC 217** (Economics)
- (3) **AGRY 255** (Soil Science)
- (1) **AGRY 398** (Agronomy Seminar)
- (3) Agricultural elective
- (3) Mathematics or sciences elective
- (2) Elective

(15)

Fourth Semester

- (3) Agronomy crops or turf elective
- (3) Agronomy soils elective
- (3) Mathematics or sciences elective
- (3) Social science or humanities elective
- (6) Electives

(18)

Animal Sciences

Credit Hours Required for Graduation: 68

Freshman Year

First Semester

- (3) **CHM 111** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) Agricultural elective
 - (4) Biological sciences elective
 - (3) Introduction to animal agriculture or biology of companion animals elective
-
- (17)

Second Semester

- (3) **CHM 112** (General Chemistry)
 - (3) Agricultural elective
 - (3) Biological sciences elective
 - (3) Calculus or statistics elective
 - (3) Economics elective
 - (3) Written or oral communication elective
-
- (18)

Sophomore Year

Third Semester

- (3) **ANSC 221** (Principles of Animal Nutrition)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) International understanding elective
 - (3) Social science or humanities elective
 - (5) Electives
-
- (17)

Fourth Semester

- (3) **AGRY 320** (Genetics)
 - (4) **ANSC 230** (Physiology of Domestic Animals)
 - (3) Animal production management elective
 - (3) Animal science elective
 - (3) Elective
-
- (16)

Horticulture

Credit Hours Required for Graduation: 65

Freshman Year

First Semester

- (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) **HORT 101** (Fundamentals of Horticulture)
 - (4) Plant biology elective
 - (3) Elective
-
- (16)

Second Semester

- (3) **AGEC 217** (Economics)
 - (3) **AGRY 255** (Soil Science)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **HORT 201** (Plant Propagation)
 - (3) Mathematics or sciences elective
-
- (16)

Sophomore Year

Third Semester

- (2) Career elective
 - (3) Crop protection elective
 - (3) Horticultural plant materials elective
 - (2) Mathematics or sciences elective
 - (3) Social science or humanities elective
 - (3) Statistics or calculus elective
-
- (16)

Fourth Semester

- (6) Career electives
 - (3) Crop protection elective
 - (3) Horticultural production electives
 - (5) Electives
-
- (17)

Interdisciplinary Agriculture

Credit Hours Required for Graduation: 65

Freshman Year

First Semester

- (3) **CHM 111** (General Chemistry)
 - (3) **COM 114** (Fundamentals of Speech Communication)
 - (3) Agricultural elective
 - (3) Biological sciences elective
 - (3) Elective
- (15)

Second Semester

- (3) **AGEC 217** (Economics)
 - (3) **CHM 112** (General Chemistry)
 - (4) **ENGL 106** (First-Year Composition)
 - (3) **MA 220** (Introduction to Calculus)
 - (3) Agricultural elective
- (16)

Sophomore Year

Third Semester

- (3) **STAT 301** (Elementary Statistical Methods)
 - (3) Agricultural elective
 - (3) Directed professional elective
 - (3) Social science or humanities elective
 - (4) Elective
- (16)

Fourth Semester

- (3) Agricultural elective
 - (9) Directed professional electives
 - (6) Electives
- (18)

Academic Minors

The 19 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 222** (Crop Production Equipment)
- (3) **ASM 345** (Power Units and Power Trains)
- (1) **ASM 350** (Safety in Agriculture)
- (3) **ASM 420** (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 300+ level courses.

- (3) **AGEC 310** (Farm Organization)
- (3) **AGEC 330** (Management Methods for Agricultural Business)
- (3) **AGRY 375** (Crop Production Systems)
- (3) **ASM 245** (Materials Handling and Processing)
- (3) **ASM 322** (Technology for Precision Agriculture)
- (3) **ASM 333** (Facilities Planning and Management)
- (3) **ASM 336** (Environmental Systems Management)

- (3) **ASM 477** (Rural Environmental Waste Management)
- (3) **MGMT 455** (Legal Background for Business I)
- (3) **OLS 252** (Human Relations in Organizations)
- (3) **OLS 274** (Applied Leadership)

Animal Sciences

Credit Hours Required: 18

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

Nutrition

- (3) **ANSC 221** (Principles of Animal Nutrition)

Physiology

- (4) **ANSC 230** (Physiology of Domestic Animals)
- (4) **BIOL 203** (Human Anatomy and Physiology)
- (4) **BIOL 204** (Human Anatomy and Physiology)
- (3) **BMS 300** (Physiology of Domestic Animals)

Genetics

- (4) **ANSC 311** (Animal Breeding)
- (3) **ANSC 511** (Population Genetics)
- (2) **ANSC 514** (Animal Biotechnology)
- (3) **BIOL 415** (Introduction to Molecular Biology)

Products

- (3) **ANSC 201** (Functional Anatomy and Animal Performance)

- (4) **ANSC 301** (Animal Growth, Development, and Evaluation)
- (3) **ANSC 351** (Meat Science)
- (3) **ANSC 368** (Dairy Products)

The remainder of the 18 credits may be completed from other courses listed above, or from Animal Sciences (ANSC) courses numbered 301 or higher. Not more than four total credits from ANSC 370, 371, 372, 470, 471, and 472 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 105** (Crop Production) or
- (3) **AGRY 375** (Crop Production Systems)
- (3) **AGRY 255** (Soil Science)
- (3) **AGRY 525** (Crop Physiology and Ecology) or
- (4) **HORT 301** (Plant Physiology)

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

- (3) **AGRY 105** (Crop Production) or
- (1–2) **AGRY 204** (Crop and Weed Identification)
- (2) **AGRY 305** (Seed Analysis and Grain Grading)
- (2) **AGRY 306** (Seed Technology)
- (3) **AGRY 320** (Genetics)
- (1) **AGRY 321** (Genetics Laboratory)
- (3) **AGRY 365** (Soil Fertility)
- (3) **AGRY 505** (Forage Management)
- (3) **AGRY 515** (Plant Mineral Nutrition)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) **BTNY 304** (Introductory Weed Science)
- (2) **ENTM 206** (General Entomology)
- (1) **ENTM 207** (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 206** (General Entomology)
- (1) **ENTM 207** (General Entomology Laboratory)
- (4) **ENTM 500** (Fundamentals of Entomology)

Insect Taxonomy — *Minimum of four credits.*

- (4) **ENTM 335** (Introduction to Insect Identification)
- (4) **ENTM 506** (Advanced Insect Taxonomy)

Insect Biology — *Minimum of three credits.*

- (3) **ENTM 210** (Introduction to Insect Behavior)
- (3) **ENTM 351** (Beekeeping)
- (3) **ENTM 460** (Aquatic Entomology)
- (3) **ENTM 551** (Insect Physiology and Biochemistry)

Insect Management — *Minimum of three credits.*

- (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
- (3) **ENTM 510** (Insect Pest Management)
- (3) **ENTM 521** (Urban and Industrial Insect Management)
- (3) **ENTM 525** (Medical and Veterinary Entomology)

Farm Management

Credit Hours Required: 18

- (3) **AGEC 310** (Farm Organization)
- (3) **AGEC 311** (Accounting for Farm Business Planning) or
- (3) **MGMT 200** (Introductory Accounting)
- (4) **AGEC 411** (Farm Management)

Electives:

- (3) **AGEC 220** (Marketing Farm Products)
- (2) **AGEC 321** (Futures and Options Market Applications)
- (3) **AGEC 352** (Quantitative Techniques for Firm Decision Making)
- (1) **AGEC 420** (Grain and Grain Products Marketing)
- (1) **AGEC 421** (Livestock and Meat Marketing)
- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) **AGEC 425** (Estate Planning and Property Transfer)
- (3) **AGEC 455** (Agricultural Law) or
- (3) **MGMT 455** (Legal Background for Business I)
- (3) **AGEC 456** (Federal Income Tax Law)
- (3) **AGEC 524** (Agricultural Finance)
- (3) **OLS 252** (Human Relations in Organizations) or
- (3) **OLS 274** (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 201** (Marine Biology)
- (3) **FNR 241** (Ecology and Systematics of Fishes and Mammals)
- (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)

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

- (3) **BTNY 555** (Aquatic Botany)
- (3) **ENTM 460** (Aquatic Entomology)
- (3) **FNR 501** (Limnology)
- (3) **FNR 502** (Watershed Hydrology, Ecology, and Management)
- (3) **FNR 523** (Aquaculture)
- (3) **FNR 525** (Fish Physiology)
- (3) **FNR 545** (Fisheries Management)
- (3) **FNR 546** (Fish Ecology)

Food and Agribusiness Management

Credit Hours Required: 18

- (3) **AGEC 220** (Marketing Farm Products)
- (3) **AGEC 330** (Management Methods for Agricultural Business)
- (3) **MGMT 200** (Introductory Accounting) or (3) **AGEC 311** (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.

- (2) **AGEC 321** (Futures and Options Market Application)
- (3) **AGEC 331** (Principles of Selling in Agricultural Business)
- (3) **AGEC 333** (Food Distribution — A Retailing Perspective)
- (3) **AGEC 352** (Quantitative Techniques for Firm Decision Making)
- (1) **AGEC 420** (Grain and Grain Products Marketing)
- (1) **AGEC 421** (Livestock and Meat Marketing)
- (1) **AGEC 422** (Technical Price Analysis)
- (4) **AGEC 424** (Financial Management of Agricultural Business)
- (3) **AGEC 425** (Estate Planning and Property Transfer)
- (3) **AGEC 426** (Marketing Management of Agricultural Business)
- (2) **AGEC 427** (Advanced Agribusiness Marketing)
- (2) **AGEC 429** (Agribusiness Marketing Workshop)
- (3) **AGEC 430** (Agricultural and Food Business Strategy)
- (4) **AGEC 431** (Advanced Agri-Sales and Marketing)
- (3) **AGEC 435** (Leadership in a Changing World)
- (1) **AGEC 440** (Advanced Futures Topics)
- (3) **AGEC 451** (Applied Econometrics)
- (3) **AGEC 455** (Agricultural Law)
- (3) **AGEC 456** (Federal Income Tax Law)
- (1-3) **AGEC 496** (Selected Topics in Agribusiness Management)
- (1) **AGEC 503** (Food Processing Management Simulation)
- (3) **AGEC 506** (Agricultural Marketing and Price Analysis)

- (3) **AGEC 524** (Agricultural Finance)
- (3) **AGEC 525** (Environmental Policy Analysis)
- (3) **AGEC 526** (International Food and Agribusiness Marketing Strategy)
- (3) **AGEC 530** (Strategic Agribusiness Management)
- (3) **AGEC 533** (Supply Chain Management for Food and Agribusiness)
- (3) **CSR 209** (Introduction to Retail Management)
- (3) **CSR 268** (Introduction to Family Business)
- (3) **CSR 282** (Customer Relations Management)
- (3) **CSR 309** (Leadership Strategies)
- (3) **CSR 315** (Personal Preparation for Selling)
- (3) **CSR 331** (Consumer Behavior)
- (3) **CSR 332** (Cross-Cultural Marketing and International Retailing)
- (3) **CSR 342** (Personal Finance)
- (3) **CSR 386** (Risk Management)
- (3) **CSR 401** (Buying of Merchandise)
- (3) **CSR 404** (Strategic Issues for Sales and Retailing)
- (3) **CSR 406** (E-Retailing)
- (3) **CSR 415** (Sales Force Management)
- (3) **CSR 417** (Relationship Selling)
- (3) **CSR 468** (Advanced Family Business)
- (2) **CSR 481** (Ethics and Compliance in Financial Counseling and Planning)
- (3) **CSR 484** (Consumer Investment and Savings Decisions)
- (3) **CSR 485** (Case Studies in Financial Planning)
- (3) **CSR 486** (Retirement Planning and Employee Benefits)
- (4) **HORT 435** (Principles of Marketing and Management for Horticultural Businesses)

Any management (MGMT) or Organizational Leadership and Supervision (OLS) course at the 200-level or above is acceptable. Only one course from **OLS 252** and **OLS 274** may be used.

Food Science

Credit Hours Required: 18

Food Science Foundations — Ten credits required.

- (3) **FS 161** (Science of Food)
- (3) **FS 362** (Food Microbiology)
- (4) **FS 453** (Food Chemistry)

Food Processing — Two to four credits required.

- (3) **ANSC 351** (Meat Science)
- (1) **ANSC 351L** (Meat Science Laboratory)
- (3) **FS 245** (Food Packaging)
- (3) **FS 341** (Food Processing I)
- (3) **FS 368** (Dairy Products)
- (3) **FS 442** (Food Processing II)
- (2) **FS 455** (Cereal Chemistry and Processing)
- (1) **FS 541** (Postharvest Technology of Fruit and Vegetables)

Additional Food Science Courses — Four to six credits required.

- (3) **F&N 315** (Fundamentals of Nutrition)
- (2) **FS 222** (Safety of Foods: Headline Topics)
- (1) **FS 361** (Food Plant Sanitation)
- (3) **FS 431** (Physical Chemistry for Food and Agriculture)
- (1) **FS 444** (Statistical Process Control)
- (2) **FS 446** (Food Process Automation)
- (4) **FS 467** (Food Analysis)
- (2) **FS 476** (Functional Foods)
- (1) **FS 503** (Food Processing Management Simulation)
- (2) **FS 564** (Food Fermentations)
- (3) **ANSC 221** (Principles of Animal Nutrition) may be substituted for (3) **F&N 315** (Fundamentals of Nutrition), but F&N 315 is preferred.

Furniture Design

Credit Hours Required: 18

- (3) **A&D 535** (Furniture Design)
- (3) **FNR 311** (Wood Structure, Identification, and Properties)
- (3) **FNR 418** (Properties of Wood Related to Manufacturing)
- (3) **FNR 419** (Furniture and Cabinet Design and Manufacture)
- (3) **FNR 425** (Secondary Wood Products Manufacturing)
- (3) **FNR 484** (Design for Computer Numerical Controlled Manufacturing)

Horticulture

Credit Hours Required: 18

Fundamentals of Horticulture or Plant Biology — Three credits required.

- (4) **BTNY 210** (Introduction to Plant Science) or three credits of plant biology
- (3) **HORT 101** (Fundamentals of Horticulture)

Plant Propagation — Three credits required.

- (3) **HORT 201** (Plant Propagation)

Electives: twelve credits of horticulture (HORT) at 200+ 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 127 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 202) 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 coursework 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 290** (Introduction to Environmental Science)
- (3) **NRES 305** (Environmental Decision-Making)

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

- (3) **ABE 525** (Irrigation Management and Design)
- (3) **ABE 526** (Watershed Systems Design)
- (3) **AGEC 406** (Natural Resource and Environmental Economics)
- (3) **AGEC 525** (Environmental Policy Analysis)
- (3) **AGRY 349** (Soil Ecology)

- (3) **AGRY 399W** (Environmental Hydrology)
- (3) **AGRY 544** (Environmental Organic Chemistry)
- (3) **ASM 336** (Environmental Systems Management)
- (3) **BIOL 483** (Environmental and Conservation Biology)
- (3) **BTNY 555** (Aquatic Botany)
- (3) **C E 350** (Environmental Engineering)
- (3) **C E 352** (Biological Principles of Environmental Engineering)
- (3) **C E 555** (Microbial Degradation of Pollutants)
- (3) **EAS 313** (Applied Geomorphology)
- (3) **EAS 513** (Aerogeology and Remote Sensing)
- (3) **EAS 583** (Geology of Landfills)
- (3) **ENTM 460** (Aquatic Entomology)
- (3) **FNR 357** (Fundamental Remote Sensing)
- (3) **FNR 488** (Global Environmental Issues)
- (3) **FNR 501** (Limnology)
- (1) **NRES 200** (Introduction to Environmental Careers)
- (3) **NRES 230** (Survey of Meteorology)
- (3) **NRES 255** (Soil Science)
- (2) **NRES 280** (Hazardous Waste Handling)
- (0) **NRES 380** (Hazardous Waste Certification Renewal)
- (3) **NRES 450** (Soil Conservation and Water Management)
- (3) **NRES 585** (Soils and Land Use)

Plant Biology

Credit Hours Required: 15

- (4) **BTNY 210** (Introduction to Plant Science)

Electives: eleven additional credits must be completed from the following courses, including at least nine credits at the 300-level or above.

- (3) **BIOL 595Z** (Cell Biology of Plants)
- (3) **BTNY 211** (Plants and the Environment)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) **BTNY 304** (Introductory Weed Science)
- (3) **BTNY 305** (Fundamentals of Plant Classification)
- (4) **BTNY 316** (Plant Anatomy)
- (1–3) **BTNY 498** (Research in Plant Science)*
- (3) **BTNY 550** (Biology of Fungi)
- (3) **BTNY 553** (Plant Growth and Development)
- (3) **BTNY 555** (Aquatic Botany)
- (4) **HORT 301** (Plant Physiology)
- (3) **HORT 350** (Biotechnology in Agriculture)

Plant Pathology

Credit Hours Required: 19

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **BTNY 301** (Introductory Plant Pathology)
- (3) **BTNY 525** (Intermediate Plant Pathology)
- (3) **BTNY 535** (Plant Disease Management)

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

- (1–3) **BTNY 498** (Research in Plant Science)*
- (1) **BTNY 515** (Diseases of Fruit Crops)
- (1) **BTNY 516** (Diseases of Vegetable Crops)
- (1) **BTNY 517** (Diseases of Agronomic Crops)
- (1) **BTNY 518** (Diseases of Landscape Trees and Shrubs)
- (1) **BTNY 519** (Diseases of Greenhouse Ornamentals)
- (3) **BTNY 550** (Biology of Fungi)

Soil Science

Credit Hours Required: 18

- (3) **AGRY 255** (Soil Science)
- (3) **AGRY 365** (Soil Fertility)

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

- (3) **AGRY 290** (Introduction to Environmental Science)
- (3) **AGRY 349** (Soil Ecology)
- (2) **AGRY 355** (Soil Morphology and Geography)
- (3) **AGRY 385** (Environmental Soil Chemistry)
- (3) **AGRY 450** (Soil Conservation and Water Management)
- (3) **AGRY 465** (Soil Physical Properties)
- (3) **AGRY 515** (Plant Mineral Nutrition)
- (3) **AGRY 540** (Soil Chemistry)
- (3) **AGRY 544** (Environmental Organic Chemistry)
- (3) **AGRY 545** (Remote Sensing of Land Resources)
- (3) **AGRY 555** (Soil and Plant Analysis)
- (3) **AGRY 560** (Soil Physics)
- (3) **AGRY 565** (Soil Classification, Genesis, and Survey)
- (3) **AGRY 580** (Soil Microbiology)
- (3) **AGRY 585** (Soils and Land Use)

Urban Forestry

Credit Hours Required: 15

- (4) **FNR 444** (Arboricultural Practices)
- (3) **FNR 445** (Urban Forestry Issues)

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

- (1) **BTNY 518** (Diseases of Landscape Trees and Shrubs)
- (3) **ENTM 340** (Insect Pests of Trees, Turf, and Ornamentals)
- (1) **FNR 434** (Tree Physiology)
- (3) **FNR 435** (Physiological Ecology of Woody Plants)
- (4) **HORT 217** (Woody Landscape Plants)
- (4) **HORT 301** (Plant Physiology)
- (3) **HORT 317** (Landscape Contracting and Management)

* A maximum of three credits may be applied to the minor.

Weed Science

Credit Hours Required: 15

- (4) **BTNY 210** (Introduction to Plant Science)
- (3) **BTNY 304** (Introductory Weed Science)
- (3) **BTNY 504** (Advanced Weed Science)

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

- (1) **BTNY 204** (Crop and Weed Identification)
- (3) **BTNY 211** (Plants and the Environment)
- (3) **BTNY 305** (Fundamentals of Plant Classification)
- (4) **BTNY 316** (Plant Anatomy)
- (1–3) **BTNY 498** (Research in Plant Science)*
- (3) **BTNY 555** (Aquatic Botany)
- (4) **HORT 301** (Plant Physiology)
- (3) **HORT 350** (Biotechnology in Agriculture)

Wildlife Science

Credit Hours Required: 16

- (3) **FNR 240** (Wildlife in America)
- (3) **FNR 241** (Ecology and Systematics of Fishes and Mammals)
- (1) **FNR 242** (Laboratory in Ecology and Systematics of Fishes and Mammals)
- (3) **FNR 251** (Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (1) **FNR 252** (Laboratory in Ecology and Systematics of Amphibians, Reptiles, and Birds)
- (2) **FNR 541** (Ecology and Management of Harvested Wildlife) or (2) **FNR 542** (Ecology and Management of Declining, Rare, and Endangered Species)
- (3) **FNR 547** (Vertebrate Population Dynamics)

Wood Products Manufacturing Technology

Credit Hours Required: 18

- (3) **FNR 301** (Wood Products and Processing)
- (3) **FNR 311** (Wood Structure, Identification, and Properties)
- (3) **FNR 418** (Products of Wood Related to Manufacturing)
- (3) **FNR 425** (Secondary Wood Products Manufacturing)
- (3) **IT 104** (Industrial Organization)
- (3) **IT 114** (Problem-Solving in Manufacturing)

* A maximum of three credits may be applied to the minor.

Information About Courses

Official Purdue University course information is available on the Web at www.purdue.edu/Purdue/course_info. Click on the “Course Information — All Campuses” 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 campus, program, and subject area, 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.

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