

College of Agricultural Sciences

- Dean's Scholar Program
- Agricultural Education
- Agricultural Engineering
 - Engineering Technology
- Animal Science and Agricultural Biochemistry
- Entomology and Applied Ecology
 - Entomology/Plant Pathology

- Food and Resource Economics
- Food Science
- Plant and Soil Sciences
- General Agriculture
- Preveterinary Instruction
- The Associate in Science Degree
- Other College Resources

any aspects of science, engineering, and economics are involved in the various professional goals of agricultural study and research. These broad fields of study extend throughout society and provide opportunities in such work and services as the invention, development, manufacture, and sale of agricultural machinery, equipment, and chemicals; processing and marketing of agricultural products; biological research, regulatory, and service work with the U.S. Department of Agriculture and other federal and state agencies; school, college, and extension teaching; scientific investigation in agricultural experiment stations, private industry, and foundations; corporate farm management; ornamental horticulture and nursery management; and consultation work for foreign governments.

The curricula in the College of Agricultural Sciences are planned to provide the student: (1) knowledge pertaining to a specific agricultural science, (2) fundamental training in other basic sciences, and (3) a broad, general educational experience. The curricula provide a flexible program of study designed to keep the student up to date on the rapid changes and improvements that are taking place in agriculture. A program of frequent counseling with a faculty adviser helps the student make steady progress toward achieving these educational goals.

The college's offices, classrooms, and laboratories are housed in Townsend Hall, Worrilow Hall, Fischer Greenhouse Laboratory, and the O.A. Newton Building, located on the south campus 400-acre experimental farm. The Research and Educational Center at Georgetown provides additional facilities for investigation in broiler and swine production, vegetables, and field crops.

Inspection trips to these facilities, to nearby agrichemical laboratories, and to commercial production, processing and marketing plants are scheduled in many of the advanced courses.

Major programs are offered in agricultural business management, agricultural economics, agricultural education, agricultural engineering technology, animal science, entomology, environmental soil science, food science, entomology/plant pathology, plant and soil sciences, and general agriculture. Concentrations are available in wildlife conservation, general entomology, landscape horticulture, agronomy, pathology, general plant science, preveterinary medicine, agricultural biotechnology, applied animal science, general animal

science, production and management, resource economics and rural development, and food marketing.

A program in engineering technology is available for students who have completed an Associate Degree in Engineering Technology or related area. An attractive feature of this program, as well as of the general agriculture program, is that students may complete their degree requirements on the Newark campus or through the Parallel Program at Dover or Georgetown.

DEAN'S SCHOLAR PROGRAM

E ach year, the College of Agricultural Sciences selects a number of highly motivated students who have clearly defined educational goals and good academic records to pursue the Dean's Scholar Program. Students in the program are freed of most college requirements and develop individual programs of study under the supervision of their faculty adviser. The individual program must be put in writing and approved by the appropriate department chair and the associate dean of the college. Additional information is available from the dean's office.

AGRICULTURAL EDUCATION

Varied opportunities are open to those who prepare themselves in this field. This program qualifies the individual for certification by the State Department of Public Instruction as a comprehensive agricultural education instructor. Some students find it desirable to major in a particular area of agricultural sciences and include agricultural education courses in their bachelor's program, while others elect to double major.

A degree in agricultural education qualifies the graduate to serve as a teacher of agricultural education in public or private secondary schools, as an instructor of adult classes in agriculture, or as an educational leader with state or federal agencies or private businesses. Other opportunities are to be found in educational administrative positions, production agriculture, the Agricultural Extension Service, the Soil Conservation Service, and various leadership posi-

tions in agricultural organizations and agencies. Those who continue agricultural education studies through graduate school may go into college and university teaching, research, and state, regional, or federal supervisory positions.

Curricula in agricultural education are arranged individually with the liaison professor in agricultural education. Selected information in the section of this catalog on the College of Education may be helpful to the agricultural education major.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: AGRICULTURAL EDUCATION CURRICULUM CREDITS* UNIVERSITY REQUIREMENTS ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content # COLLEGE REQUIREMENTS Mathematics and Computer Science Mathematics course Computer Science course selected from CISC 105, EGTE 111, FREC 235, or equivalent Agricultural and Biological Sciences Minimum of one course outside the student's major in three of the following areas: Food and Resource Economics, Food Science, Agricultural Engineering, Animal Science, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology Literature and Arts Nine credits from English and/or Communication Social Sciences and Humanities Minimum of one course in three of the following areas: Anthropology, Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or Women's Studies Physical Sciences Minimum of eight credits selected from one of the following areas: Chemistry, Physics, Geology, or Physical Science. MAJOR REQUIREMENTS External to the College Educational Psychology – Social Aspects Educational Psychology – Cognitive Aspects Student Teaching EDST 304 EDST 305 EDDV 400 One of the following three courses: lowing three courses: Education and Society Measurement Theory and Techniques for **EDST 201 EDST 461** Classroom Teachers **EDDV 620** Within the College from at least three departments in the college. Within the Department **Professional Education ELECTIVES** 32-35 ¹⁻⁴ May include Military Science, Music, or Physical Education. (Only four credits of activity-type Physical Education and/or four credits of performing Music organization credit may be counted toward the degree.) In order to graduate with a major in Agricultural Education, students must have a minimum of 40 credit hours of General Education CREDITS TO TOTAL A MINIMUM OF 130

AGRICULTURAL ENGINEERING

Agricultural engineering technology is a part of the broad discipline of agricultural engineering that bridges two fields of applied sciences: agriculture and engineering Agricultural engineering technology is the application of engineering techniques in such areas as production mechanization, energy, soil and water conservation, plant and animal environments, agricultural waste management, processing and storage, and building construction. This requires a knowledge of physical and natural sciences and technical skills to support engineering activities.

This agricultural engineering technology curriculum is designed to prepare students for engineering-related employment in agricultural industries. A scientific or business background may be obtained according to the student's interest through the selection of electives in the College of Agricultural Sciences and other colleges of the University. To graduate with a major in agricultural engineering technology, students must attain a 2.0 average in agricultural engineering technology courses. This is in addition to the University requirement for graduation that a 2.0 average be attained in all course work at the University.

The computer is a heavily used tool throughout the agricultural engineering technology curriculum. Students are urged to purchase a personal computer. Please contact the department chair for further information on computer specifications or the academic program.

DEGREE: BACHELOR OF APPLIED SCIENCE MAJOR: AGRICULTURAL ENGINEERING TECHNOLOGY	
CURRICULUM CREDITS	*
UNIVERSITY REQUIREMENTS ENGL 110 Critical Reading and Writing** 3 1 Three credits in an approved course or courses stressing 3 1 multicultural, ethnic, and/or gender-related content.#	4
COLLEGE REQUIREMENTS	_
Communications 6 Six credits selected to provide training in oral and written communications to include: EGTE 365 Junior Seminar 1	
A second writing course selected from the following: ENGL 301 Expository Writing	
An oral communications course selected from the following: COMM 200 Introduction to Human Communication Systems 3 COMM 255 Fundamentals of Communication . 3 COMM 312 Oral Communication in Business . 3 COMM 350 Public Speaking . 3 COMM 356 Small Group Communication . 3	
Social Sciences and Humanities	4
Nine credits to be selected from a minimum of three of the following areas: Anthropology, Art, Art History, Black American Studies, Criminal Justice, Economics, Education, English, Foreign Language, Geography, History, Music, Philosophy, Political Science, Psychology, Sociology, Theatre, or Women's Studies	
Basic Sciences and Mathematics 31 l- Thirty-one credits selected to provide fundamental knowledge about nature and its phenomena and mathematics including calculus as follows:	3

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ²sophomore year, etc.

^{**}Minimum grade of C- required

[#]This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23

Biology, Ch	emistry and Physics	
CHEM 103	Science course 3 General Chemistry 4	2
CHEM 104	General Chemistry 4	2
PHYS 201 or	General Physics	
PHYS 207	General Physics 4	
PHYS 202	General Physics 4	.2
or PHYS 208	General Physics 4	
Mathematic	cs and Statistics	
	f 12 credits in mathematics and statistics. Specific require-	
ments are: MATH 221 or	Calculus I	1
MATH 241	Analytic Geometry and Calculus A	
MATH 222 or	Calculus II	2
MATH 242	Analytic Geometry and Calculus B	
STAT 201	Introduction to Statistics I	
or MATH 243	Analytic Geometry and Calculus C	
	ematics or Statistics Course at the 200 level or above 3	
	OUIREMENTS†	
Technical Sc	iences	1-3
subject matter	its that deal with the application of engineering science to include one course in each of the following areas: Elec- lechanics, Statics, and Thermodynamics	
Specific requirEGTE 218 EGTE 244 EGTE 311 EGTE 454	rements are: Fundamentals of Hydraulic Systems 4 Electricity for Engineering Technology 4 Fundamentals of Thermodynamics 3 Rural/Light Industrial Buildings 4	2
In addition, a Dynamics, Ele	course must be selected from one of the following areas: setronics, Materials Technology, or Strength of Materials by be selected from the following: Electronics and Microprocessors 3 Machinery Design and Development 3	
Technical Sk	<i>kills</i> ‡12	
Twelve credits methods, proc graphics, prob tation technique	selected to provide skills and knowledge of appropriate sedures and techniques and may include computer use, olem solving, processes, construction techniques, instrumenues, production methods, field operations, plant operand maintenance to include:	
Required: EGTE 109 EGTE 111 EGTE 113 EGTE 209	Technical Drafting	
Elective: EGTE 344	Electronics and Microprocessors 3	
or EGTE 443	Instrumentation	
or EGTE 444	Programmable Logic Control Systems§ 3	4
Twenty-two cre and electives as a problem-s	pecialization 22 edits selected from courses that involve technical design At least one course that emphasizes use of the computer solving tool will be required.	
Specific requir EGTE 331 EGTE 431	rements are: Mechanical Power Units	3 4

EGTE 445	Food Engineering Technology	44
and two of the EGTE 328 EGTE 421 EGTE 440 EGTE 443 EGTE 444 EGTE 456 AGEG 628		3 ³ 4 ⁴ 3 ⁴ 3 ⁴ 3 ⁴
Technical Su		19
ests of the stud	its selected to support the specialization and career inter- tent	
Specific requir PCSC 204	Introduction to Soil Science	4 ²⁻
FREC 201 FOSC 201/2	the following: Wildlife Conservation Records and Accounts 11 Food Principals and Lab Introduction to Animal Science Research Methods	2/1 3
tional course v	twelve credits may be satisfied in part or in total by addi- work in the Agricultural Engineering department or closely t matter, a double major within the College of Agricultural levant University-approved minor.	
	rith a major in Agricultural Engineering Technology, stu- ain a 2.0 index in Agricultural Engineering Technology	
Electives		
Electives	courses, sufficient elective credits must be taken to meet	1-2 1-4
the minimum n Music, or Phys Education and	courses, sufficient elective creatis must be taken to meet number of 130 credits May include Military Science, sical Education. (Only four credits of activity-type Physical L/or four credits of performing Music organization credit at toward the degree.)	
CREDITS TO	TOTAL A MINIMUM OF	130

ENGINEERING TECHNOLOGY

Engineering technology is part of the broad discipline of engineering, in which a knowledge of the mathematical and natural sciences is applied to utilize materials and forces for the benefit of mankind. Engineering technology requires the application of scientific and engineering knowledge combined with technical skills in support of engineering activities. Technical management, an integral part of the curriculum, provides basic management concepts utilized in engineering and production-related projects.

The engineering technology curriculum provides a student with a strong background in the basic sciences and the latest technological advances in engineering and management concepts. The engineering technologist is a problem solver and is applications oriented. The engineering technology curriculum prepares the engineering technologist to make independent judgments, to understand systems components, and to operate systems to achieve conceptual goals without jeopardizing their effectiveness, safety or cost. Close liaison is maintained between the educational programs and industry to give graduates the greatest opportunity for career development and to accommodate industry's needs for competent manpower.

[†]A course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation Note the following guidelines for technical skills:
 A maximum of thirty semester hours will be permitted in this category
 Selection of courses must be consistent with specialization

A maximum of six hours of construction and other techniques, methods or operations i.e., construction, operation and production techniques, can be applied toward degree requirements.

A maximum of six hours of surveying and topographic mapping can be applied toward degree requirements.

A maximum of six hours of construction, production and other techniques, methods or operations i.e., construction, operation and production techniques, can be applied toward degree requirements. 6. After matriculation in the program, course work will normally be limited to instrumentation and computer use §EGTE 444 may only be used to fullfill either a Technical Skills Elective or a Technical Specialization Elective, but not both

Admission to the engineering technology major requires an Associate Degree in Engineering Technology or equivalent. The curriculum has been structured so that a student may pursue a B.A.S. degree on a full- or part-time basis. Students may complete degree requirements in Newark or through the University Parallel Program at Dover or Georgetown.

Because of mutual interests and problems in production, the ET major is jointly offered by the Department of Agricultural Engineering and the Department of Food and Resource Economics. Prospective students are urged to contact the ET adviser to evaluate their previous academic work prior to seeking formal admission to the program.

	SACHELOR OF APPLIED SCIENCE NGINEERING TECHNOLOGY	
CURRICULUM	1 .	CREDITS*
ENGL 110 Three credits	TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content #	3 ¹ 3 1-4
	REQUIREMENTS	
Communica Six credits sel tions to include	ations ected to provide training in oral and written communica- le:	6 ¹⁻³
A second writ ENGL 301 ENGL 302 ENGL 307 ENGL 312 ENGL 410	ling course selected from the following: Expository Writing . Advanced Composition News Writing and Editing Written Communications in Business Technical Writing	3
COMM 200 COMM 255 COMM 312 COMM 350 COMM 356	Oral Communication in Business Public Speaking Small Group Communication	3 3 3
Fifteen credits our cultural he		f
ECON 151 ECON 152	Introduction to Microeconomics Introduction to Macroeconomics	
following area ies, Criminal J guage, Geogr Psychology, S	o be selected from a minimum of three of the as: Anthropology, Art, Art History, Black American Stud- lustice, Economics, Education, English, Foreign Lan- raphy, History, Music, Philosophy, Political Science, ociology, Theatre or Women's Studies	
Basic Scienc	es and Mathematics	31 1-3
Thirty-one cred and its phenor	lits selected to provide fundamental knowledge about natur nena and mathematics including calculus as follows:	9
Biology, Che Biology/Life S CHEM 103 CHEM 104 PHYS 201 or PHYS 207	emistry and Physics cience course General Chemistry General Chemistry General Physics General Physics	42

	PHYS 202	General Physics	4 ²			
	or PHYS 208	General Physics				
	Mathematics and Statistics					
A minimum of 12 credits in mathematics and statistics Specific require-						
	ments are: MATH 221 or	Calculus I				
	MATH 241	Analytic Geometry and Calculus A	4			
	MATH 222	Calculus II	., 32			
	or MATH 242	Analytic Geometry and Calculus B	4			
	STAT 201	Introduction to Statistics I	3			
	or MATH 243 Elective Math	Analytic Geometry and Calculus C	4 3			
	MAJOR RE	QUIREMENTS†				
	Technical Sc	iences	18 ¹⁻³			
	subject matter tricity, Fluid M course must b tronics, Mater	its that deal with the application of engineering science to include one course in each of the following areas: Electechanics, Statics, and Thermodynamics. In addition, a e selected from one of the following areas: Dynamics, Electel Technology, or Strength of Materials.				
	Technical SI	cills‡	12-30 ¹⁻³			
	appropriate m puter use, gra instrumentatio	of thirty credits selected to provide skills and knowledge of the thods, procedures and techniques and may include comphics, problem solving, processes, construction techniques, not techniques, production methods, field operations, plant afterly and maintenance to include: nor microprocessors course Introduction to Data Analysis	3			
	EGTE 111	Computer Applications in Engineering Technology	3			
,	EGTE 111	Computer Applications in Engineering Technology	3			
/	Technical Sp A minimum of design and el- in course work cal specializa the computer of selected from: EGTE 321	Computer Applications in Engineering Technology pecialization nine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technition categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management	3 9 ²⁻⁴			
/	Technical Sp. A minimum of design and elin course work as specializathe computer as selected from: EGTE 321 EGTE 331	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technition categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units	3 92-4			
/	Technical Sp A minimum of design and el- in course worl cal specializa the computer a selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435	Computer Applications in Engineering Technology pecialization nine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technicin categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Fundamentals of HVAC. Machinery Design and Development	3 92-4 4 4 3 3			
/	Technical Sp. A minimum of design and el in course worl cal specialized the computer selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the oper duction units the FREC 201	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technicin categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Frundamentals of HVAC Machinery Design and Development anagement fifteen credits selected to enhance the ability to underration and management of companies and/or their pro-	3 9 ²⁻⁴ 4 4 3 3 15 ²⁻⁴			
,	Technical Sp. A minimum of design and elin course worl cal specializa the computer selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the oper duction units the period of the special	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technicin categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Frundamentals of HVAC Machinery Design and Development anagement fifteen credits selected to enhance the ability to underration and management of companies and/or their prooinclude: Records and Accounts	3 924 4 4 3 3 15 ²⁻⁴			
	FGTE 111 Technical Sp A minimum of design and el in course worl cal specializathe computer selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the oper duction units to FREC 201 or ACCT 207 ACCT 208 Accounting cree	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technition categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Fundamentals of HVAC Machinery Design and Development anagement iffeen credits selected to enhance the ability to underration and management of companies and/or their propinclude:	3 924 4 4 3 3 15 ²⁻⁴			
,	FEGTE 111 Technical Sp A minimum of design and elin course worl cal specializa the computer selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the oper duction units the free conduction units of the country of the	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technicin categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Frundamentals of HVAC Machinery Design and Development anagement fifteen credits selected to enhance the ability to underration and management of companies and/or their proo include: Records and Accounts Accounting I Accounting I edits cannot exceed six of the fifteen credit hours. FREC 201 ute for ACCT 207 ACCT 207 will substitute for FREC 201.	3 9 ²⁻⁴ 4 3 3 15 ²⁻⁴			
	For an inimum of design and elin course worl cal specializa the computer of selected from: EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the operation of the selected from: ACCT 207 ACCT 208 Accounting crewill not substitute the minimum of the minimum of the substitute of the minimum of the free of the f	Computer Applications in Engineering Technology pecialization inine credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours k assigned to technical science, technical skills and technicin categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Frundamentals of HVAC. Machinery Design and Development anagement fifteen credits selected to enhance the ability to underration and management of companies and/or their prooinclude: Records and Accounts Accounting I Accounting II edits cannot exceed six of the fifteen credit hours. FREC 201 and for the property of the prop	3 9 ²⁻⁴ 4 3 3 15 ²⁻⁴			
	FGTE 111 Technical Sp A minimum of design and elin course worl cal specializathe computer a selected from: EGTE 321 EGTE 321 EGTE 331 EGTE 456 EGTE 435 Technical M A minimum of stand the operation units to FREC 201 or ACCT 207 ACCT 208 Accounting crewill not substite ELECTIVE: After required the minimum of Music, or Physe Education and may be countered.	Computer Applications in Engineering Technology pecialization in inite credits selected from courses that involve technical ectives. Students must complete at least 48 semester hours is assigned to technical science, technical skills and technicino categories. At least one course that emphasizes use of as a problem-solving tool will be required and will be Storm Water Management Mechanical Power Units Fundamentals of HVAC Machinery Design and Development anagement fifteen credits selected to enhance the ability to underration and management of companies and/or their prooinclude: Records and Accounts Accounting I. Accounting II. active for ACCT 207 ACCT 207 will substitute for FREC 201 atte for ACCT 207 ACCT 207 will substitute for FREC 201. S courses, sufficient elective credits must be taken to meet number of 130 credits. May include Military Science, sical Education (Only four credits of activity-type Physical Hor four credits of performing Music organization credited toward the degree)	3 9 ²⁻⁴ 4 3 3 15 ²⁻⁴			

Note the following guidelines for technical skills:
 1. A maximum of thirty semester hours will be permitted in this category
 2. Selection of courses must be consistent with specialization.

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ² sophomore year, etc.

**Minimum grade of C-required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23 †A course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation.

**Note: the following a quidelings for technical tability.

³ A maximum of six hours of drafting and one course in Computer-Aided Drafting can be applied toward degree requirements

⁴ A maximum of eight hours of surveying and topographic mapping can be applied toward degree requirements
5 A maximum of six hours of construction, production and other techniques, methods or operations i.e., construction, operation and production techniques, can be applied toward degree requirements
6. After matriculation in the program, course work will normally be limited to instrumentation and computer use.

ANIMAL SCIENCE AND AGRICULTURAL BIOCHEMISTRY

Animal Science encompasses a wide range of disciplines in which the principles of biology, chemistry and biochemistry are applied to animal agriculture. Instruction is offered in animal nutrition, physiology, genetics, and reproduction; in animal health and molecular biology; and in dairy, livestock and poultry management. Students interested in veterinary medicine have the opportunity to obtain preveterinary training required for admission to a veterinary school. Students interested in pursuing graduate studies in the animal sciences are well prepared by available course work and laboratory experiences.

Students are encouraged to participate in a broad realm of research projects under study in the department through independent study/special problems courses. Department faculty foster student involvement in the University Honors Programs through sponsorship of Science and Engineering Scholars and candidates for the Degree with Distinction. The teaching philosophy of the department faculty is to emphasize basic knowledge pertaining to animal science.

The department offers four areas of concentration within the major: preveterinary medicine, agricultural biotechnology, applied animal science, and general animal science. Animal health, management, nutrition, molecular biology and physiology constitute areas in which the animal science student may wish to specialize

A curriculum for each concentration follows. The preveterinary concentration is designed to meet not only the department, college, and University requirements for the B.S. degree, but also the admission requirements of most veterinary schools to which students apply.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: ANIMAL SCIENCE

CONCENTRATION: PREVETERINARY MEDICINE	
CURRICULUM	CREDITS*
UNIVERSITY REQUIREMENTS ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content.#	3 l-4
COLLEGE REQUIREMENTS	
Mathematics and Computer Science Mathematics course (MATH 115 or higher level) Computer Science course selected from CISC 105, EGTE 111, FREC 235, or equivalent	
Agricultural and Biological Sciences Minimum of one course outside the student's major in three of the following areas: Food and Resources Economics, Food Science, Agricultural Engineering, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology	
Literature and Arts Six credits selected from the general areas of English, Art, Art History, Communication, Music, Theatre, or Foreign Language	6 ^{2,3}
Social Sciences and Humanities	92,3
Minimum of one course in three of the following areas: Anthropology, Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or Women's Studies	
Physical Sciences Minimum of eight credits selected from one of the following areas: Chemistry, Physics, Geology, or Physical Science.	8 ¹
MAJOR REQUIREMENTS	
External to the College	
BISC 207 Introductory Biology I	41

CHEM 101	General Chemistry	41
or CHEM 103	General Chemistry	
CHEM 102	General Chemistry	4 1
or CHEM 104	General Chemistry	4 ¹
Within the	Department	
ANSC 101 ANSC 111 ANSC 140 ANSC 251 ANSC 300 ANSC 332 ANSC 345 ANSC 465	Introduction to Animal Science Animal Science Laboratory Functional Anatomy Livestock Nutrition and Feeding Principles of Animal and Plant Genetics Introduction to Animal Diseases Comparative Physiology of Domestic Animals Seminar	1 1 3 2 3 3 3 3 4 3
	nust he selected from the following:	
ANSC 404 ANSC 417 ANSC 418 ANSC 421	Dairy Production Beef Cattle and Sheep Production Swine Production Poultry Production	33-4
Animal Scien	ce courses	. 5 ³
No more than	n five credits of ANSC 266, 366, 466 or 666 Special spendent Study may be used for the major.	
	d the major will be granted for only two of the following: 322, 342, or 420	
Within the	Concentration	
ANSC 310 BISC 371 CHEM 321 CHEM 325 CHEM 322 CHEM 326 CHEM 527 MATH 221 PHYS 201 PHYS 202	Animal Genetics Laboratory Introduction to Microbiology Organic Chemistry Organic Chemistry Laboratory Organic Chemistry Laboratory Organic Chemistry Laboratory Introductory Biochemistry or equivalent Calculus General Physics General Physics	43 12 12 32 134 31 31
ELECTIVE		
	30-	33
credits of acti	Military Science, Music, or Physical Education (Only four vity-type Physical Education and/or four credits of perform- ganization credit may be counted toward the degree)	
	ded Electives	2.4
FREC 201 ANSC 270 ANSC 431 ANSC 446 ANSC 452 ANSC 635 COMM 312 ENGL 312 FREC 408	Records and Accounts Biotechnology: Science and Socioeconomic Issues Infection and Immunity in Animal Diseases Environmental Physiology of Domestic Animals Advanced Comparative Animal Nutrition Introduction to Virology Oral Communication in Business Written Communications in Business Research Methods	3 ² 4 ³ 4 ³ 4 ³ 4 3 ² 3 ² 3 ² 3 ³
CREDITS TO	TOTAL A MINIMUM OF 13	30
* # # 		
MAJOR: A	ACHELOR OF SCIENCE IN AGRICULTURE INIMAL SCIENCE RATION: AGRICULTURAL BIOTECHNOLOGY	DITO
CURRICULUM	CREI	DITS*
ENGL 110 Three credits multiculture	TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content #	3 ¹ 3 ¹⁻⁴
	REQUIREMENTS as and Computer Science	
marnematic	s and computer science	- 1

Mathematics course (MATH 115 or higher level) ..

FREC 235, or equivalent

Computer Science course selected from CISC 105, EGTE 111,

Introductory Biology II

BISC 208

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ² sophomore year, etc.
**Minimum grade of C required.
#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23

Minimum of a ing areas: Fo	one course outside the student's major in three of the follow- od and Resources Economics, Food Science, Agricultural	2-12 ^{2,3}	ANSC 645 Avian Physiology ANSC 654 Ruminant Nutrition One additional course must be selected from the following:	34
or Biology	Entomology and Applied Ecology, Plant and Soil Sciences,		BISC 601 Immunochemistry	44
•	1.6.	62,3	BISC 602 Molecular Biology of Animal Cells BISC 650 Bacterial Physiology	24
	and Arts	6 -,0	BISC 653 Recent Advances in Molecular Biology	34
Six credits se	lected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language		BISC 654 Biochemical Constice	24
		2.2	BISC 658 Developmental Genetics	34
	nces and Humanities	92,3	BISC 6/1 Immunobiology	. 37
Black Americ	one course in three of the following areas: Anthropology, an Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or		BISC 679 Virology. BISC 693 Human Genetics	34
Women's Stu			ELECTIVES	
Physical Sc	iences	. 8 ¹	Electives	2-7
Minimum of e	sight credits selected from one of the following areas: ysics, Geology, or Physical Science		May include Military Science, Music, or Physical Education. (Only four credits of activity-type Physical Education and/or four credits of performing Music organization credit may be counted toward the degree.)	
MAJOR RE	QUIREMENTS			
External to			Recommended Electives CHEM 220 Quantitative Analysis	2-4
BISC 207	Introductory Biology I	41	CHEM 220 Quantilative Analysis	34
BISC 208	Introductory Biology I	1	COMM 350 Public Speaking	24
CHEM 101	Introductory Biology II General Chemistry	- 4 1	ENGL 312 Written Communication in Business	3 2-4
or			FOSC 439/639 Food Microbiology	: 4 ⁻
CHEM 103	General Chemistry	4 ¹	FOSC 449/649 Fermentation Technology	44
CHEM 102 or	General Chemistry	_ 4 ¹	CREDITS TO TOTAL A MINIMUM OF 13	30
CHEM 104	General Chemistry	_ 4 ¹		
Within the I			DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE	
ANSC 101	Introduction to Animal Science	3 1	MAJOR: ANIMAL SCIENCE	
ANSC 111	Animal Science Laboratory] ! - / -	CONCENTRATION: APPLIED ANIMAL SCIENCE	
ANSC 140	Functional Anatomy	A '	CURRICULUM CREI	DITS*
ANSC 251	Livestock Nutrition and Feeding	3 ^z		
ANSC 300	Principles of Animal and Plant (-enetics		UNIVERSITY REQUIREMENTS	_ 1
ANSC 332 ANSC 345	Introduction to Animal Diseases Comparative Physiology of Domestic Animals	33	ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing	3 1-4
ANSC 465	Seminar Seminar	14	multicultural, ethnic, and/or gender-related content #	. 3
One course in ANSC 404	nust be selected from the following:	23-4	COLLEGE REQUIREMENTS	
ANSC 404 ANSC 417	Dairy Production Beef Cattle and Sheep Production	33-4	Mathematics and Computer Science	
ANSC 418	Swine Production	ე ∪-4	Mathematics course (MATH 115 or higher level)	3 1
ANSC 421	Poultry Production	3 3-4	Computer Science course selected from CISC 105, EGTE 111,	. 3 ²
Animal Science	ce courses	53	FREC 235, or equivalent	
			Agricultural and Biological Sciences 9-	$12^{2,3}$
Problem/Inde	five credits of ANSC 266, 366, 466 or 666 Special pendent Study may be used for the major.		Minimum of one course outside the student's major in three of the follow- ing areas: Food and Resources Economics, Food Science, Agricultural	
Credit toward ANSC 221, 3	the major will be granted for only two of the following: 322, 342, or 420.		Engineering, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology	
Within the C	Concentration		Literature and Arts	. 6 ^{2,3}
ANSC 270	Biotechnology: Science and Socioeconomic Issues	3 2	Six credits selected from the general areas of English, Art, Art History,	
ANICC 210	Animal Canatica Inharatane	13	Communication, Music, Theatre, or Foreign Language	
ANSC 431	Intection and Immunity in Animal Diseases	A4 .	Social Sciences and Humanities	92,3
AN3C 400	Independent Study (Approved research project)	3	Minimum of one course in three of the following areas: Anthropology,	
ANSC 670	Molecular (jenetics	-7 →	Black American Studies, Criminal Justice, Economics, Education, Geog-	
BISC 301 BISC 371	Molecular Biology of the Cell Introduction to Microbiology	42-3	raphy, History, Philosophy, Political Science, Psychology, Sociology, or	
CHEM 321	()ragnic (hemistry		Women's Studies	
CHEM 325	Organic Chemistry Laboratory	7 4	Physical Sciences	81
CHEM 322	Organic Chemistry	3	Minimum of eight credits selected from one of the following areas:	
CHEM 326	Organic Chemistry Laboratory	~	Chemistry, Physics, Geology, or Physical Science	
CHEM 527	Introductory Biochemistry	3 4		
or			MAJOR REQUIREMENTS	
	nd CHEM 642 Biochemistry	6 ⁴	External to the College	
MATH 221	Calculus I	. 3	BISC 207 Introductory Biology I	4!
PHYS 201 PHYS 202	General Physics General Physics	4 3	BISC 208 Introductory Biology II	A 1
		. 4	CHEM 101 General Chemistry	4
	num of one course from the following:	24	or.	
ANSC 624	Monogastric Nutrition	34	CHEM 103 General Chemistry	
ANSC 633	Poultry Pathology Introduction to Virology	3	CHEM 102 General Chemistry	. 4 1
ANSC 635 ANSC 643	Molecular Endocrinology	34	or	
M 100 040	THORSEOIGE Efficiently and an arrangement of the second se	J	CHEM 104 General Chemistry	. 4 1

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹freshman year, ²sophomore year, etc.

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23.

Within the I		
ANSC 101 ANSC 111	Introduction to Animal Science Animal Science Laboratory	3 1
ANSC 140	Functional Anatomy	4 1
ANSC 251 ANSC 300	Livestock Nutrition and Feeding	32
ANSC 332	Introduction to Animal Diseases Comparative Physiology of Domestic Animals	33
ANSC 345 ANSC 465	Comparative Physiology of Domestic Animals Seminar	43 14
	nust be selected from the following:	
ANSC 404 ANSC 417	Dairy Production Beef Cattle and Sheep Production	
ANSC 418	Swine Production	33-4
ANSC 421	Poultry Production,	3
	ce courses I five credits of ANSC 266, 366, 466, or 666 Special	5 ³
	pendent Study may be used for the major.	
Credit toward ANSC 221, 3	the major will be granted for only two of the following: 322, 342, or 420	
Within the C	Concentration	
FREC 120 FREC 201	Elementary Agricultural Economics Records and Accounts	3 ¹ 3 ²⁻³
ANSC 201	Behavior of Domestic Animals	3
ANSC 441 ANSC 446	Reproductive Physiology Environmental Physiology of Domestic Animals	34
ANSC 452	Advanced Comparative Animal Nutrition	A -+
CHEM 213 CHEM 214	Elementary Biochemistry	32
CHEM 216	Elementary Biochemistry Laboratory	17.
ENTO 205 PLSC 151	Elements of Entomology Introduction to Crop Science	22-3
PLSC 204	Introduction to Soil Science	3 ²⁻³
Select a minin ANSC 404	num of three courses from the following: Dairy Production	3 3-4
ANSC 417	Reef Cattle and Sheen Production	ვ 3-4
ANSC 418 ANSC 420	Swine Production Equine Management	
ANSC 421	Poultry Production	
ELECTIVE		
Electives	Allitary Science, Music, or Physical Education (Only four	24
credits of activ	vity-type Physical Education and/or four credits of perform-	
-	anization credit may be counted toward the degree.)	
FREC 153	ied Electives Agricultural Salesmanship	3 ¹⁻²
FREC 350	Farm Management	33-4
EGTE 328 ANSC 270	Agricultural Waste Management Systems	3^2
ANSC 431	Infection and Immunity in Animal Diseases	44
BISC 371 COMM 312	Oral Communication in Business	വാ
ENGL 312	Written Communications in Business Agronomic Crop Science	3 2-4
PLSC 401	TOTAL A MINIMUM OF 13	
		•
MAJOR: A	ACHELOR OF SCIENCE IN AGRICULTURE NIMAL SCIENCE RATION: GENERAL ANIMAL SCIENCE	
CURRICULUM	CRED	ITS*
	'Y REQUIREMENTS	-
ENGL 110	Critical Reading and Writing**	3 ¹ 3 1-4
Three credits is multicultura	n an approved course or courses stressing I, ethnic, and/or gender-related content #	3 1-4
	REQUIREMENTS	
	s and Computer Science ourse (MATH 115 or higher level)	3 ¹

Computer Sci FREC 235, or	ence course selected from CISC 105, EGTE 111,	3 ² .
	l and Biological Sciences9-	122,3
Minimum of or areas: Food a	ne course outside the student's major in three of the following nd Resources Economics, Food Science, Agricultural Engineer- gy and Applied Ecology, Plant and Soil Sciences, or Biology	
Six credits sel	and Arts	6 ^{2,3}
Minimum of a Black America	nces and Humanities one course in three of the following areas: Anthropology, an Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or dies	9 ^{2,3}
Minimum of e	iences sight credits selected from one of the following areas: ysics, Geology, or Physical Science	. 8 ¹
	EQUIREMENTS	
External to		
BISC 207	Introductory Biology I	41
BISC 208	Introductory Biology II	4'
CHEW 101	General Chemistry	4 '
or CHEM 103	General Chemistry	41
CHEM 102	General Chemistry	4.1
or CHEM 104	General Chemistry	
Within the I	•	
ANSC 101	Introduction to Animal Science	3 1
ANSC 111	Animal Science Laboratory	1 '
ANSC 140 ANSC 251	Functional Anatomy Livestock Nutrition and Feeding	32
ANSC 300	Principles of Animal and Plant Genetics	
ANSC 332	Introduction to Animal Disagres	., .
ANSC 345 ANSC 465	Comparative Physiology of Domestic Animals Seminar	14
	nust be selected from the following:	
ANSC 404	Dairy Production	3 3-4
ANSC 417	Beef Cattle and Sheep Production	3 3-4 3 3-4
ANSC 418 ANSC 421	Swine Production Poultry Production	33-4
	ce courses	
	n five credits of ANSC 266, 366, 466 or 666 Special	-
Problem/Inde	pendent Study may be used for the major	
	I the major will be granted for only two of the following: 322, 342, or 420	
ELECTIVE		
		51
credits of activing Music org	Military Science, Music, or Physical Education (Only four vity-type Physical Education and/or four credits of performanization credit may be counted toward the degree.)	
Recommend FREC 201	ded Electives Records and Accounts	3 2-3
ANSC 270	Riotechnology: Science and Socioeconomic Issues	3 4
ANSC 420	Falling Management	.5
BISC 371		
COMM 350 ENGL 312	Public Speaking Written Communications in Business	3 ²⁻⁴
7	TOTAL A MINIMUM OF 13	30
BEALIDEA	IENITE EAD A MINIAD INI ANIMANI SCIENICE	

The minor in animal science requires 16-18 credits in animal science including the following: ANSC 101; 111; 251; 332; one course from ANSC 201, 431, 441, or 446; and one course from ANSC 404, 417, 418, 420, and 421.

REQUIREMENTS FOR A MINOR IN ANIMAL SCIENCE

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ²sophomore year, etc.

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23.

ENTOMOLOGY AND APPLIED ECOLOGY

Entomology emphasizes the structure, physiology, behavior, development, ecology, classification, and control of insects. Applied ecology utilizes practical methods to manage interrelationships of organisms with each other and their nonliving environment. Pest management and wildlife conservation are examples of applied ecology.

Entomology is a separate field of biology because insects are the most varied and abundant animals on earth and because they are vitally important to humans. They profoundly influence ecosystems as prey, predators, parasites, and pollinators. The variety of insects challenges students to understand how insects tolerate environmental conditions, find food, reproduce, and grow. Insects are studied in many basic areas of biology such as ecology, behavior, physiology, genetics, and evolution. They are of increasing concern to conservation biology.

Some insects attack and damage plants, animals, structures, and stored products or transmit disease agents. Others pollinate plants or attack plants and animal pests. These factors have prompted a search for ways to manipulate insect populations. Heavy reliance on poisons to limit insect numbers has created new problems. Applied entomology now seeks practical, ecologically sound methods for insect population management.

Wildlife conservation is the effort to perpetuate free-living, breeding populations of non-domestic species. The biology of species and threats to their existence must be understood. This knowledge is used to design and execute plans to manage ecosystems or populations. Government develops and enforces conservation laws and regulations. Advocacy, education, and mass communication also are part of wildlife conservation.

The Department offers two concentrations in the major. Students can focus their biological interest on insects in the General Entomology Concentration. This program requires basic sciences as well as specialty courses on insects. Some flexibility in insect, plant science, and biology courses permits students to emphasize pest management or insect biology. The Wildlife Conservation Concentration is for students with interests in the biological aspects of environmental science, e.g., conservation, wildlife biology, or ecology. It requires basic sciences, specialty courses in vertebrates, insects, plants, and conservation and other supporting courses. The curriculum's flexibility accommodates career goals ranging from research to nature education, conservation advocacy and wildlife management.

Faculty teach and conduct research. Students are often involved in aspects of these research programs. The faculty strive to cultivate inquiring attitudes and problem-solving skills in students and emphasize study in biology and other sciences. Students are encouraged to be broadly educated through exposure to the social sciences, humanities, and arts and to develop good writing and speaking skills. The department prepares students for knowledgeable participation in society whether or not they ultimately choose a career in entomology or wildlife conservation.

The faculty adviser and student jointly plan the course program according to the student's career objective. Successful students enter research, teaching, business, or public service positions. They frequently pursue graduate degrees in entomology, physiology, genetics, ecology, wildlife conservation, or biology to expand their career opportunities. Admission to graduate study requires strong academic performance and a solid background in the sciences.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE **MAJOR: ENTOMOLOGY** CONCENTRATION: GENERAL ENTOMOLOGY

COLACTIAL	MAIIOIN OLIVEIGE LINOMOLOGI	
CURRICULUA	Λ	CREDITS*
	TY REQUIREMENTS	
ENGL 110	Critical Reading and Writing**	3 1
Three credits	in an approved course or courses stressing al, ethnic, and/or gender-related content #	3 1-4
COLLEGE	REQUIREMENTS	
	cs and Computer Science	•
Computer Sc FREC 235	course (MATH 115, 171 or higher level) ience course selected from CISC 105, EGTE 111, , or equivalent	3 1
Agricultura	I and Biological Sciences	9-12 ¹⁻³
Minimum of o	one course outside the student's major in three of the follow od and Resource Economics, Food Science, Agricultural Animal Science, Plant and Soil Sciences, or Biology	<i>t-</i>
Literature d	and Arts	6 1-3
Six credits se	lected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language	
Social Scien	nces and Humanities	9 1-3
Black Americ	one course in three of the following areas: Anthropology, an Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or dies	
Physical Sc	iences	8 ¹
Minimum of e	eight credits selected from one of the following areas: sysics, Geology, or Physical Science	
MAJOR RE	EQUIREMENTS†	
	xternal to the College	
AGRI 211	Literature of Agricultural and Life Sciences	
BISC 207 BISC 208	Introductory Biology II	1,2
BISC 302	General Ecology	33
CHEM 101	General Chemistry	4 ¹
or CHEM 103	General Chemistry	41
CHEM 102	General Chemistry	41
OF CHEM 104	General Chemistry	41
Nine credits f	rom the following:	93,4
Biology (BISC) PLSC 151	courses at or above 300 level and the following PLSC cours Introduction to Crop Science	es:
PLSC 201	Botany II	
PLSC 204	Introduction to Soil Science	4
PLSC 211 PLSC 212	Herbaceous Landscape Plants Woody Landscape Plants	
PLSC 303	Introductory Plant Pathology	
PLSC 402	Plant Taxonomy	
Within the I	Department***	
ENTO 205	Elements of Entomology	
ENTO 305 ENTO 406	Entomology Laboratory Insect Identification—Taxonomy	2 1,2
ENTO 465	Seminar	14
Within the (Concentration***	
ENTO 300	Principles of Animal and Plant Genetics	33,4
ENTO 405	Insect Structure and Function	14
ENTO 408	Field Taxonomy s (may include 3 credits maximum of	A 2-4
Independe	nt Study, Research, and Field Experience.)	
ELECTIVE		
	Netty Code Market District Education (Oaks)	30 2-4

May include Military Science, Music, or Physical Education (Only two

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., 1 freshman year, 2 sophomore year, etc.

[†]His requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23 †A course may be applied toward both the major requirement and a college requirement, but credits are counted only once toward the total credits for graduation ***A grade of C or better is required for all ENTO credits used to satisfy departmental requirements.

credits of ac	tivity-type Physical Education and/or two credits of perform- ganization credit may be counted toward the degree.)		GEOL 107 PHYS 201	General Geology General Physics	A 2-4
CREDITS TO TOTAL A MINIMUM OF 124			PHYS 202 PLSC 204	General Physics Introduction to Soil Science	A 2-4
				- 8 credits from the following:	
DEGREE:	BACHELOR OF SCIENCE IN AGRICULTURE		ANSC 140	Functional Anatomy of Domastic Animals	4 2-4
MAJOR: I	NTOMOLOGY		BISC 301	Molecular Riology of the Call	A 3,4
CONCENT	FRATION: WILDLIFE CONSERVATION		BISC 303	Capatic and Evolutionary Biology	A ~ / ~ /
CURRICULU/	√ CRED	ITS*	BISC 305		
	•	110	BISC 306	(Conoral Physiology	. , , →
	TY REQUIREMENTS	1	BISC 312	General Ecology Lab	43.4
ENGL 110	Critical Reading and Writing** in an approved course or courses stressing	3 1	BISC 324 BISC 371	Invertebrate Zoology Introduction to Microbiology	42-4
Three credits	in an approved course or courses stressing	3 1~4	BISC 442	Vertebrate Morphology	3,4
multicultu	al, ethnic, and/or gender-related content.#		BISC 494		
COLLEGE	REQUIREMENTS		BISC 495	Evolution	. વુ∪,⊸
Mathemati	ics and Computer Science		BISC 680	Vostobreto Natural History	44
Mathematics	course (MATH 115, 171 or higher level)	3 ¹	ENTO 300	Principles of Animal and Plant Genetics Animal and Plant Genetics Laboratory	3 3,4
Computer Sc	ience course selected from CISC 105, EGTE 111,	31	ENTO 310	Animal and Plant Genetics Laboratory	1 3,4
FREC 235	, or equivalent		(same as PLS	C 300, 310; may not count for both Group II and III)	
Agriculture	al and Biological Sciences	21,3		— 6 credits from the following:	4
	one course outside the student's major in three of the follow-		BISC 440	Natural History of Plants	42.3
	nimal Science, Food and Resource Economics, Food Sci- ltural Engineering, Plant and Soil Science or Biology		PLSC 101 PLSC 201	Botany II	42,3
		1 2	PLSC 300	Principles of Animal and Plant Caenetics	.1 0,-
Literature (and Arts	61-5	PLSC 310	Animal and Plant Genetics Lab	1 3,4
	lected from the general areas of English, Art, Art History,		(same as EN	IO 300 310: may not count for both Group II and III	
Communicati	on, Music, Theatre, or Foreign Language		PLSC 402	Plant Tayonomy	3 3,4
		9 ¹⁻³	PLSC 410	Introduction to Plant Physiology	3 ^{3,4}
	one course in three of the following areas: Anthropolo-		GROUP IV	— 6 credits from the following:	
gy, Black Am	erican Studies, Criminal Justice, Economics, Education,			count toward the College Literature and	
Geography,	History, Philosophy, Political Science, Psychology, Soci-		Arte Group R	aduirement	
ology, or vvo	men's Studies	1	COMMA 255	Fundamentals of Communication	3 2-4
Physical Sc		8 '	COMMAN STO	Oral Communication in Business	72-
Minimum of	eight credits selected from one of the following areas:		COMM 350	Public Speaking	2 4-4
Chemistry, Ph	nysics, Geology, or Physical Science		ENGL 301	Expository Writing	. ત્ર∠
MAJOR RI	EQUIREMENTS†		ENGL 307		
	xternal to the College		ENGL 309 ENGL 312	Feature and Magazine Writing. Written Communications in Business	22-4
AGRI 211	Literature of Agricultural and Life Sciences	1,2	ENGL 410	lechnical Writing	., √, −
BISC 207	Introductory Biology	∆¹ ,∠	THEA 102	Introduction to Portormanco	- 7 2 -
BISC 208	Introductory Biology II	4',2	THEA 204	Introduction to Voice and Speech	32-
BISC 302	General Ecology	33	THEA 220	Movement and Non-Verbal Communication	3 2-4
CHEM 101	General Chemistry	41	CDOUDY	A and the form the full college on high relevals in	
or			GROUP V -	 6 credits from the following or higher-levels in addition to college math and computer requirements: 	
CHEM 103	General Chemistry	4 ¹	AGEG 111	Computer Applications in Engineering Technology	3 2-4
CHEM 102	General Chemistry		or or	Computer Applications in Engineering technology	3
or			CISC 105	General Computer Science	3 2-4
CHEM 104	General Chemistry	4 1	or .		
	Department***		GEOG 250	Computer Methods in Geography	4 2-4
ENTO 205	Elements of Enternal and	1,2	FREC 408	Research Methods	3 3,4
ENTO 305	Elements of Entomology Entomology Laboratory		MATH 221		
ENTO 406	Insect Identification—Idxonomy	3 -,0	MATH 222	Calculus II Finite Mathematics with Applications	33.4
ENTO 465	Seminar	14	MATH 230 STAT 201	Introduction to Statistics	33,4
Within the			STAT 202	Introduction to Statistics I	3 3,4
	Concentration***	.12			
ENTO 201	Wildlife Conservation and Ecology Wildlife Management	2.3	GROUP VI	— 6 credits from the following:	0.4
ENTO 325 ENTO 318	Taxonomy of Birds.	2,3	ECON 151	Introduction to Microeconomics	3 2-4
ENTO 418	Avian Biology	, , , ,	or	el le le	.12
FNTO 425	Mammalaay	₹ ⁰ /¬	FREC 120	Elementary Agricultural Economics	3 1,2
ENTO course	s (may include 3 credits maximum of	5 ²⁻⁴		previous courses is prerequisite to FREC 424, 444)	_ 1
Independe	nt Study, Research, and Field Experience)		FREC 424	Resource Economics: Theory and Policy	3 4
		3.	FREC 444	Economics of Environmental Management Earth Resources and Ecology	- 3 →
	- 8 credits from the following (or higher levels of CHEM and PHYS	oj: 42.3	GEOL 234 GEOL 421	Environmental and Applied Geology	23,4
CHEM 213	Elementary Organic Chemistry Elementary Biochemistry	2,3	GEOL 421 GEOG 235	Conservation of Natural Resources	34
CHEM 214 CHEM 216	Elementary Biochemistry Laboratory	2,3	GEOG 236	Conservation: Global Issues	ે વ~4
GEOG 206	Physical Geography: Topography-Soils	2-4	POSC 105	The American Political System	3 1-4
200 200	Trysteat Goography, jopography-oons	•		<u>,</u>	

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ²sophomore year, etc

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23

†A course may be applied toward both the major requirement and a college requirement, but credits are counted only once toward the total credits for graduation.

***A grade of C or better is required for all ENTO credits used to satisfy departmental requirements.

POSC 220 POSC 350 SOCI 210	Introduction to Public Policy Politics and the Environment Population Problems	J
Number of e concentration Military Scie activity-type I	ES elective credits depends on number of courses chosen for groups that also satisfy college requirements. May incence, Music, or Physical Education. (Only four credits of Physical Education and/or four credits of performing Manager in credit may be counted toward the degree.)	r Iude
CREDITS TO	O TOTAL A MINIMUM OF	124

Students should complete their programs with electives that broaden their views of the world and strengthen their preparation for a career. Organic chemistry, biochemistry, statistics, and additional writing courses are strongly recommended. A list of suggested courses and other information is available in the department office. Course selection should be made in consultation with the academic adviser during the preregistration period of each term.

A minimum grade of C is required for all ENTO credits used to satisfy departmental requirements.

REQUIREMENTS FOR A MINOR IN ENTOMOLOGY

The minor in entomology requires 15 credits of courses with an ENTO prefix, including: ENTO 205, 305, and 406. A student may emphasize general entomology or wildlife conservation by proper choice of ENTO courses for the remaining 7 credits. A minimum grade of C is required in all courses counting toward the minor. Credits for Special Problem, Independent Study, Research, and Field Experience do not count toward the minor.

ENTOMOLOGY/PLANT PATHOLOGY

Because of mutual interests and problems in the field of plant protection, the Department of Entomology and Applied Ecology and the Department of Plant and Soil Sciences offer a joint major, entomology/plant pathology (EPP). In a world of expanding population and increasing pressure on supplies of food and fiber, both plant pathology and entomology offer the challenge and satisfaction of a career that contributes to human welfare. This combined major allows students to study both insects and plant diseases. It includes courses emphasizing recognition of pests and their symptoms and strategies for pest management compatible with the agricultural system and the

Students majoring in EPP are neither entomology nor plant science majors and therefore are not subject to any special requirements of either department.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: ENTOMOLOGY/PLANT PATHOLOGY	
CURRICULUM	REDITS*
UNIVERSITY REQUIREMENTS	
ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content.#	3 ¹ 3 ¹⁻⁴
COLLEGE REQUIREMENTS	
Mathematics and Computer Science Mathematics course (MATH 115 or higher level) Computer Science course selected from CISC 105, EGTE 111, FREC 235, or equivalent	3 ¹ 3 ²

Minimum of ing areas: Fo Engineering,	al and Biological Sciences one course outside the student's major in three of the follow- one and Resource Economics, Food Science, Agricultural Animal Science, Entomology and Applied Ecology, Plant ences, or Biology	
Six credits se	and Arts elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language.	
Minimum of Black Americ	nces and Humanities one course in three of the following areas: Anthropology, can Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or idies	9 1-3
	ciences eight credits selected from one of the following areas: hysics, Geology, or Physical Science	8 ¹ .
MAJOR RI	EQUIREMENTS	
External to	the College	
BISC 207	Introductory Biology I	43
BISC 208	Introductory Biology II	43
CHEM 101	General Chemistry	42
CHEM 103	General Chemistry	4
CHEM 102	General Chemistry	. , . 4 ²
or CHEM 104	General Chemistry	4
Within the	College	
^CRI 211	Literature of the Agricultural and Life Sciences	12
Within the	Departments	
ENTO 205	Flaments of Entomology	31
ENTO 305	Entomology Laboratory	24
ENTO 406	Insect Identification—Idvonomy	70,.
ENTO 408 ENTO 411	Field Taxonomy Economic Entomology	33,4
ENTO 465	Seminar	
PLSC 101	Botany I	4'
PLSC 201	Rotany II	4 '
PLSC 303 PLSC 411	Introductory Plant Pathology Diagnostic Plant Pathology	24
PISC 411	Diagnostic Plant Pathology Laboratory	1-64
Sixteen credi	Diagnostic Plant Pathology Laboratory ts from Entomology and Applied Ecology	163
and/or Plant	Science (may include 3 credits maximum of Independent rch and Field Experience.)	
ELECTIVE		
Electives		6-29 ²⁻⁴
Courses in A mended. (On two credits of	griculture, Biology, and the Physical Sciences are recom- ly two credits of activity-type Physical Education and/or f performing Music organization credit may be counted	
toward the d	9	
CREDITS TO	TOTAL A MINIMUM OF	124

The choice of department in which to complete the remaining credits provides the student with the opportunity to emphasize either applied entomology or plant pathology in his or her program. Students should complete their programs with electives that will provide an education best suited to their goals. Course election should be made in consultation with the academic adviser during the preregistration period of each term. This program should include other courses in agriculture, biology, and physical sciences. A list of suggested courses and other information is available in the Department of Entomology and Applied Ecology and in the Department of Plant and Soil Sciences office.

The curriculum will prepare the student for graduate study in entomology, plant pathology or related areas or direct entry into vari-

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ² sophomore year, etc. **Minimum grade of C_required.

[#]This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23

Chemistry, Physics, Geology, or Physical Science

ous agricultural industries, research, or government service where pest management and plant protection are important. For federal employment, a student must have 16 credits in entomology to qualify for a GS-5 rating as an entomologist. To qualify as a GS-5 as a plant pathologist, a student must have 10 plant pathology credits and 20 credits in basic botany or plant science.

FOOD AND RESOURCE ECONOMICS

The study of food and resource economics is concerned with the economics of production, marketing and resource management in the agricultural-business complex. Courses and curricula are designed to provide a thorough background in the principles of organization and management of agribusiness firms serving agriculture and food processing businesses. Food and resource economics also includes study of financing agricultural business firms, marketing and international trade of agricultural products, price analyses, economics of land utilization, and agricultural and environmental policies

Two major programs are offered: (a) agricultural business management and (b) agricultural economics. The curricula differ in the amount of emphasis given to agricultural production, business and economics. Both curricula qualify the student for graduate work

The curriculum in agricultural business management is offered cooperatively with the College of Business and Economics. This curriculum prepares the student for a career in agribusiness sales and marketing, food wholesaling and retailing, international trade, resource management, market analysis, finance and banking, and commodity marketing (futures and options). A concentration in food marketing is offered as part of the agricultural business management major.

The curriculum in agricultural economics emphasizes resource and environmental economics, production economics and agricultural marketing, and provides a solid foundation in economics and business. It prepares the student to work in the fields of agriculture, government, teaching, extension and research. Two concentrations are offered as part of the agricultural economics major: production and management, and resource economics and rural development.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE

MAJOR: AGRICULTURAL BUSINESS MANAGEMENT	
CURRICULUM	CREDITS*
UNIVERSITY REQUIREMENTS ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content #	3 ¹ 3 ¹ -4
COLLEGE REQUIREMENTS	
Mathematics and Computer Science Mathematics course (MATH 115 or higher level)† Computer Science course (FREC 235 or equivalent)	3 '
Agricultural and Biological Sciences Minimum of one course outside the student's major in three of the following areas: Food and Resource Economics, Food Science, Agricultural Engineering, Animal Science, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology.	9-12 ^{1,2} v-
Literature and Arts Six credits selected from the general areas of English, Art, Art History, Communication, Music, Theatre, or Foreign Language	62
Social Sciences and Humanities Minimum of one course in three of the following areas: Anthropology,	92

Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or
Women's Studies
Physical Sciences
Minimum of eight credits selected from one of the following areas:

MAJOR REQUIREMENTS

External to the College				
ACCT 207	Accounting Accounting	.3 ³		
ACCT 208	Accounting II	33		
COMM 312	Ordi Communication in Business	. 3 ്		
ENGL 312	Written Communications in Business	33		
ECON 151	Introduction to Microeconomics	33		
ECON 152	Introduction to Macroeconomics	ვა.		
BUAD 301	Introduction to Marketing	33,4		
Two additions	al courses offered by the College of Business	63,4		
and Econo	mics.			
Within the I	Department	,		

, , , , , , , , , , , , , , , , , , , ,	
FREC 120	Elementary Agricultural Economics
FREC 125	Elementary Agricultural Economics: Applications
FREC 235	Introduction to Data Analysis
FREC 240	Quantitative Methods in Agricultural Economics 32
FREC 465	Seminar 14
S	and the 100 level or where the discount has been been at

the following general greas:

me ronowing	general dieds.	
1. Marketing, FREC 404 FREC 410 FREC 441	International Trade Food Marketing International Agricultural Trade Futures Markets in Agriculture	3 ^{3,4} 3 ^{3,4} 4 ^{3,4}
2. Production FREC 403 FREC 406 FREC 408 FREC 427	/Management Production Economics Agricultural Policy Research Methods Agricultural Finance	3 ^{3,4} 3 ^{3,4} 3 ^{3,4}
3. Resources/ FREC 420 FREC 424 FREC 429 FREC 444	Development Agriculture in Economic Development Resource Economics Theory and Policy Rural Development Theory and Policy Economics of Environmental Management	3 ^{3,4} 3 ^{3,4} 3 ^{3,4}
TOTAL FOR ED	FC 435 FBFC 430	

FREC 405, FREC 435, FREC 630, and Independent Study may not be counted in the seven courses

A maximum of three credits of Independent Study in Food and Resource Economics and a maximum of six credits of Independent Study in all areas, including Food and Resource Economics, may be counted toward a degree

ELECTIVES Electives

.... 32-36 ¹⁻⁴ May include Military Science, Music, or Physical Education (Only four credits of activity-type Physical Education and/or four credits of performing Music organization credit may be counted toward the degree.)

CREDITS TO TOTAL A MINIMUM OF 130

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: AGRICULTURAL BUSINESS MANAGEMENT **CONCENTRATION: FOOD MARKETING**

CURRICULUM	CREDITS*
UNIVERSITY REQUIREMENTS	
ENGL 110 Critical Reading and Writing**	3 !
ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content.#	3 1-4
COLLEGE REQUIREMENTS	
Markey and Committee Esigne	

COLDEGE REQUIREMENTS	
Mathematics and Computer Science	
Mathematics course (MATH 115 or higher level)†	
Computer Science course (FREC 235 or equivalent)	3

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ²sophomore year, etc

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail: See page 23
†MATH 221, MATH 230 and STAT 201 are strongly suggested.

Agricultural and Biological Sciences 9-12 Minimum of one course outside the student's major in three of the follow-	Study in all areas, including Food and Resource Economics, may be counted toward a degree.
ing areas: Food and Resource Economics, Food Science, Agricultural	ELECTIVES
Engineering, Animal Science, Entomology and Applied Ecology, Plant	Electives
and Soil Sciences, or Biology	After a mile of accuracy and a complete of cufficient placeting and different ba
Literature and Arts	taken to meet the minimum credit requirement for the degree. May
Six credits selected from the general areas of English, Art, Art History, Communication, Music, Theatre, or Foreign Language	include Military Science, Music, or Physical Education (Only four credits of activity-type Physical Education and/or four credits of performing
Social Sciences and Humanities	Music organization credit may be counted toward the degree)
Minimum of one course in three of the following areas: Anthropology, Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or	REQUIREMENTS FOR A MINOR IN AGRICULTURAL
Women's Studies	BUSINESS MANAGEMENT/AGRICULTURAL ECONOMICS
Physical Sciences	The minor in Agricultural Business Management/ Agricultural Eco
Minimum of eight credits selected from one of the following areas: Chemistry, Physics, Geology, or Physical Science	nomics requires 18 credits of courses with the FREC prefix including FREC 120 and FREC 201. Four additional courses are required
MAJOR REQUIREMENTS	including at least one course from each of the following three areas:
External to the College	
ACCT 207 Accounting I	3 CURRICULUM CREDITS
ACCT 208 Accounting	1. Marketing/International Trade
ENGL 312 Written Communications in Business 3	FREC 312 Food Retailing and Wholesaling 3
FCON 151 Introduction to Microeconomics	FDEC 410
FCON 152 Introduction to Macroeconomics	FDEC 443 F
BUAD 301 Introduction to Marketina 3	(· / · · · · · · · · · · · · · · · · ·
Two additional courses offered by the College of Business and Economics	2. Production/Management
Within the Department	FREC 350 Farm Management 3 FREC 403 Agricultural Production Economics 3
FREC 120 Elementary Agricultural Economics	FREC 406 Agricultural Policy 3
FREC 125 Elementary Agricultural Economics: Applications 1	FREC 408 Research Methods 3
FREC 235 Introduction to Data Analysis	FREC 427 Agricultural Finance 3
FREC 240 Quantitative Methods in Agricultural Economics 3	3. Resource/Development
FREC 465 Seminar 1	FREC 420 Agriculture in Economic Development
Seven courses at the 400 level or above with at least two in each of the following general areas:	FREC 424 Resource Economics: Theory and Policy 3 FREC 429 Rural Economic Development Theory and Policy 3
1. Marketing/International Trade	FREC 444 Feonomics of Environmental Management 3
FREC 404 Food Marketing 3	3.4
FREC 410 International Agricultural Trade 3 FREC 441 Futures Markets in Agriculture 4	A minimum grade of C is required in all courses counting
,	toward the minor Credits for FREC 405, FREC 435, FREC 630
2. Production/Management FREC 403 Production Economics 3	Independent Study and Field Experience do not apply
EDEC 406 Agricultural Policy	3,4
FREC 408 Research Methods 3	3,4 3,4 DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE
FREC 408 Research Methods 3 FREC 427 Agricultural Finance 3	MAJOR: AGRICULTURAL ECONOMICS
3 Pasources / Davidonment	
FREC 420 Agriculture in Economic Development 3 FREC 424 Resource Economics Theory and Policy 3	3,4 CURRICULUM CREDITS*
FREC 424 Resource Economics Theory and Policy 3	3,4 UNIVERSITY REQUIREMENTS
FREC 429 Rural Development Theory and Policy 3 FREC 444 Economics of Environmental Management 3	3.4 ENGL 110 Critical Reading and Writing**
FREC 405, FREC 435, FREC 630 and Independent Study may not	3,4 ENGL 110 Critical Reading and Writing** 31 Three credits in an approved course or courses stressing 31-4 multicultural, ethnic, and/or gender-related content.#
be counted in the seven courses	COLLEGE REQUIREMENTS
The requirement for the major in Agricultural Business management	Mathematics and Computer Science
must be met. The following department courses are required for the concentration and may also be used to meet the area requirements for	Mathematics course (MATH 115 or higher level) t
the Agricultural Business Management major:	Computer Science course (FREC 235 or equivalent)
FREC 404 Food Marketing 3	Agricultural and Biological Sciences 9-12 1,2
FREC 408 Research Methods 3	Minimum of any source outside the student's major in three of the follow
FREC 410 International Agricultural Trade	ing greas: Food and Resource Fronomics, Food Science, Agricultural
FREC 427 Agricultural Finance 3 FREC 441 Futures Markets in Agriculture 4	Engineering, Animal Science, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology
In addition, the following courses are required:	Literature and Arts
FREC 405 Food Marketing Management 3 Three Business Administration courses at the 300 or 400 level in mar-	Six credits selected from the general areas of English, Art, Art History, Communication, Music, Theatre, or Foreign Language
keting related areas. These are in addition to BUAD 301-Introduction	Social Sciences and Humanities 92
to Marketing and the two additional Business and Economics courses	Minimum of one course in three of the following areas: Anthropology,
required by the Agricultural Business Management major.	Black American Studies, Criminal Justice, Economics, Education,
A maximum of three credits of Independent Study in Food and Resource Economics and a maximum of six credits of Independent	Geography, History, Philosophy, Political Science, Psychology, Sociology, or Women's Studies

^{*}Superior figures indicate year or years in which the course is normally taken, i e , ¹ freshman year, ²sophomore year, etc.

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23 †MATH 221, MATH 230 and STAT 201 are strongly suggested.

Physical Sc	ciences	8 ^{1,2}	Agriculture	al and Biological Sciences	. 9.
	eight credits selected from one of the following areas:		Minimum of	one course outside the student's major in three of the follow-	
Chemistry, Pl	hysics, Geology, or Physical Science		ing areas: Fo	ood and Resource Economics, Food Science, Agricultural	
MAJOR RI	EQUIREMENTS			Animal Science, Entomology and Applied Ecology, Plant	
	the College			ences, or Biology	
COMM 312	Oral Communication in Rusiness	₃ 4		and Arts	
ENGL 312	Written Communications in Business	32		elected from the general areas of English, Art, Art History,	
ECON 151	Introduction to Microeconomics		Communicat	ion, Music, Theatre, or Foreign Language	
ECON 152	Introduction to Macroeconomics	ე ა		nces and Humanities	
ECON 302	Money Credit and Bankina	-10'-		one course in three of the following areas: Anthropology,	
ECON 300	Intermediate Microeconomic Theory		Black Americ	can Studies, Criminal Justice, Economics, Education, Geog-	
ECON 303	Intermediate Macroeconomic Theory al courses offered by the College of Business	33,4	raphy, Histor Women's Stu	y, Philosophy, Political Science, Psychology, Sociology, or	
and Front	omics at the 300 level or higher ‡	0 '			
	· · · · · · · · · · · · · · · · · · ·			iences	
	Department	- 1	Chamistry Pl	eight credits selected from one of the following areas: hysics, Geology, or Physical Science	
FREC 120 FREC 125	Elementary Agricultural Economics	3 · 1 l	,.	, , , , , , , , , , , , , , , , , , , ,	
FREC 201	Elementary Agricultural Economics: Applications Records and Accounts	32	MAJOR RI	EQUIREMENTS	
FREC 235	Introduction to Data Analysis	3 '	External to	the College	
FREC 240	Quantitative Methods in Agricultural Economics	. 3 -	COMM 312	Oral Communication in Business	
FREC 465	Seminar	1 4	ENGL 312	Written Communications in Business	
	s at the 400 level or above with at least two in each of		ECON 151	Introduction to Microeconomics	
the following	general areas:		ECON 152	Introduction to Macroeconomics	
1. Marketina	/International Trade		ECON 302 ECON 300		
FREC 404	Food Marketing	33,4	ECON 303		
FREC 410	International Agricultural Trade	3 3,4		al courses offered by the College of Business	
FREC 441	Food Marketing International Agricultural Trade Futures Markets in Agriculture	4 ^{3,4}	and Econo	omics at the 300 level or higher ‡	
	Management		Within the	Department	
FREC 403	Production Economics Agricultural Policy Research Methods	33,4	FREC 120	Elementary Agricultural Economics	
FREC 406 FREC 408	Agricultural Policy	33,4	FREC 125	Elementary Agricultural Economics: Applications	
FREC 427	Agricultural Finance	33,4	FREC 201	Records and Accounts	
	/Development	0	FREC 235	Introduction to Data Analysis	4 4 - 4
FREC 420	Agriculture in Economic Development	33,4	FREC 240	Quantitative Methods in Ágricultural Economics	
FREC 424	Resource Economics—Theory and Policy	33,4	FREC 465	Seminar	
FREC 429	Fural Economic Development Theory and Policy	-10,-		s at the 400 level or above with at least two in each of	
FREC 444	Economics of Environmental Management	3 ^{3,4}	the following	general areas:	
FREC 405, FI	REC 435, FREC 630, and independent Study may not be			/International Trade	
counted in the	e seven courses		FREC 404	Food Marketing	
A maximum o	of three credits of Independent Study in Food and		FREC 410 FREC 441	International Agricultural Trade Futures Markets in Agriculture	
Resource Eco	nomics and a maximum of six credits of Independent		· · ·		1 1 -1 -1
Study in all a	reas, including Food and Resource Economics, may be			n/Management Production Economics	
counted towa	rd a degree		FREC 403 FREC 406	Agricultural Policy	
ELECTIVE	SS		FREC 408	Research Methods	
Electives		-33 1-4	FREC 427	Agricultural Finance	
May include	Military Science, Music, or Physical Education, (Only four		3 Resources	/Development	
credits of acti	vity-type Physical Education and/or four credits of perform-		FREC 420	Agriculture in Economic Development	
ing Music org	ganization credit may be counted toward the degree)		FREC 424	Resource Economics-Theory and Policy	
CREDITS TO	TOTAL A MINIMUM OF1	30	FREC 429	Rural Economic Development-Theory and Policy	
			FREC 444	Economics of Environmental Management	
				ents for the major in Agricultural Economics must be met	
	ACHELOR OF SCIENCE IN AGRICULTURE		In addition, the FREC 350	he following courses must be taken:	
MAJOR: A	GRICULTURAL ECONOMICS		FREC 403	Farm Management Production in Economics	
CONCENT	RATION: PRODUCTION AND MANAGEMENT				
CURRICULUM	A CRE	DITS*	Economics m	conomics (FREC) courses required for the Agricultural ajor may be used to satisfy requirements for the Produc-	
UNIVERSI	TY REQUIREMENTS	*	tion and Man	nagement concentration	
ENGL 110	Critical Reading and Writing**	31		the Business and Economic courses required for the Agri-	
Three credits	in an approved course or courses stressing	3 1-4		omics major, the following courses must be taken:	
multiculture	al, ethnic, and/or gender-related content.#	-	BUAD 309 BUAD 382	Management and Organizational Behavior International Business Management	
	REQUIREMENTS			Economic Forecasting	
	. T.		STAT 201	Introduction to Statistics I	
Mathematic	cs and Computer Science course (MATH 115 or higher level)†	21	STAT 202	Introduction to Statistics II	
Computer Sci	ence course (FREC 235 or equivalent)	3 31	FREC 405, FF	REC 435, FREC 630, and Independent Study may not be	
Compoter 30	once coolse times 200 or equivalently	5		e seven courses	

3^{3,4}

9-12 1,2

8 1,2

3 1,2 33,4

33,4

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., 1 freshman year, 2 sophomore year, etc
**Minimum grade of C- required.
#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23
†MATH 221, MATH 230 and STAT 201 are strongly suggested
‡Students can qualify for a minor in Economics if they take an additional 400-level Economics course and obtain a grade of C- or better in all Economics courses (see "The Minor in Economics" in the College of Business and Economics curricula).

Resource Econ Study in all ar	of three credits of Independent Study in Food and nomics and a maximum of six credits of Independent reas, including Food and Resource Economics, may be rd a degree	
credits of activing Music org		
MAJOR: A	ACHELOR OF SCIENCE IN AGRICULTURE GRICULTURAL ECONOMICS RATION: RESOURCE ECONOMICS AND RURA DEVELOPMENT	L
CURRICULUM		REDITS*
ENGL 110 Three credits i	TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.#	3 ¹
Mathematic Mathematics of Computer Science	REQUIREMENTS s and Computer Science course (MATH 115 or higher level)† ence course (FREC 235 or equivalent)	3 '
Minimum of or ing areas: Foo Engineering, A	I and Biological Sciences ne course outside the student's major in three of the follow- od and Resource Economics, Food Science, Agricultural Animal Science, Entomology and Applied Ecology, Plant nces, or Biology	
Six credits sele	nd Arts ected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language	6 ²
Social Scien Minimum of or Black America Geography, H	nees and Humanities ne course in three of the following areas: Anthropology, sin Studies, Criminal Justice, Economics, Education, listory, Philosophy, Political Science, Psychology, Women's Studies	9 ²
Minimum of ei	ences ight credits selected from one of the following areas: ysics, Geology, or Physical Science	8 ¹
	QUIREMENTS	
ENGL 312 ECON 151 ECON 152 ECON 302 ECON 300 ECON 303 Two additiona	the College Oral Communication in Business Written Communications in Business Introduction to Microeconomics Introduction to Macroeconomics Money, Credit and Banking Intermediate Microeconomic Theory Intermediate Macroeconomic Theory Il courses offered by the College of Business mics at the 300 level or higher.‡	3 1,2 3 1,2 3 3,4 3 3,4 3 3,4
FREC 125 FREC 201 FREC 235 FREC 240	Pepartment Elementary Agricultural Economics Elementary Agricultural Economics: Applications Records and Accounts Introduction to Data Analysis Quantitative Methods in Agricultural Economics Seminar	3 ¹ 3 ² 3 ²
the following g	at the 400 level or above with at least two in each of general areas: International Trade Food Marketing	3 3,4
	1 000 marketing or contrate management of the co	

FREC 410 FREC 441	International Agricultural Trade Futures Markets in Agriculture	3 ^{3,4}
2. Production, FREC 403 FREC 406 FREC 408 FREC 427	/Management Production Economics Agricultural Policy Research Methods Agricultural Finance	3 ^{3,4} 3 ^{3,4} 3 ^{3,4}
3. Resources/ FREC 420 FREC 424 FREC 429 FREC 444	Development Agriculture in Economic Development Resource Economics—Theory and Policy Rural Economic Development—Theory and Policy Economics of Environmental Management	33,4
	ents for the major in Agricultural Economics must be met e following courses must be taken: Resource Economics–Theory and Policy Rural Economics Development-Theory and Policy Economics of Environmental Management	3 ^{3,4}
Economics and Economics and	conomics (FREC) courses required for the Agricultural ijor may be used to satisfy requirements for the Resource d Rural Development concentration. Geography	3 1-4
Agricultural Ed	the Business and Economics courses required for the conomics major, four of the following courses, with at ach area, must be taken:	
1. Political Eco ECON 306 ECON 311 ECON 408 ECON 411	Public Choice Economic Growth and Development Policy Economics of Law Economics of Growth and Development	33,4
2. Quantitative ECON 415 ECON 422 ECON 423 ECON 426	e Methods	3 ^{3,4} 3 ^{3,4} 3 ^{3,4}
3. Application ECON 433 ECON 475 ECON 477	s Economics of the Public Sector Economics of Natural Resources Benefit-Cost Analysis	
	EC 435, FREC 630, and Independent Study may not be seven courses.	
Resource Econ	f three credits of Independent Study in Food and nomics and a maximum of six credits of Independent eas, including Food and Resource Economics, may be d a degree	
ELECTIVES		
credits of activ	Ailitary Science, Music, or Physical Education. (Only four rity-type Physical Education and/or four credits of perform- anization credit may be counted toward the degree)	14-18 ¹⁻⁴
CREDITS TO	TOTAL A MINIMUM OF	. 130

FOOD SCIENCE

The Food Science major is designed to provide students with a broad understanding and professional preparation in areas of food production, processing, evaluation, and distribution. These include positions within the food and allied industries, the government, and independent research institutions. The role of the food scientist in such positions may involve production and process development, engineering, quality control, technical service and sales, and regulatory service, education, or basic research. The food science research program has opportunities for students in three areas: (1) packaging, package product interaction, and food chemistry; (2) biotechnology, fermentations, and food microbiology; and

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹freshman year, ²sophomore year, etc

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23

†MATH 221, MATH 230 and STAT 201 are strongly suggested.

\$Sudents can qualify for a minor in Economics if they take an additional 400-level Economics course and obtain a grade of C- or better in all Economics courses.

(see "The Minor in Economics" in the College of Business and Economics curricula)

(3) process engineering technology. Educational and research opportunities in biotechnology are fostered by the department's Biotechnology Group. The program includes course work in life and chemical sciences, mathematics and engineering, plus independent research work on applied science problems. A minimum of a 2.00 GPA is required for graduation. Students may join as members of the Institute of Food Technologists.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: FOOD SCIENCE CURRICULUM CREDITS* UNIVERSITY REQUIREMENTS ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing multicultural, ethnic, and/or gender-related content # COLLEGE REQUIREMENTS† Mathematics and Computer Science Mathematics course Computer Science course selected from CISC 105, EGTE 111, FREC 235, or equivalent Agricultural and Biological Sciences Minimum of one course outside the student's major in three of the following areas: Food and Resource Economics, Agricultural Engineering, Animal Science, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology Literature and Arts Six credits selected from the general areas of English, Art, Art History, Communication, Music, Theatre, or Foreign Language Social Sciences, and Humanities . Minimum of one course in three of the following areas: Anthropology, Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or Women's Studies Physical Sciences Minimum of eight credits selected from one of the following areas: Chemistry, Physics, Geology, or Physical Science MAJOR REQUIREMENTS† External to the College General Chemistry 4 General Chemistry 4 General Chemistry 4 Elementary Biochemistry 32 Quantitative Analysis 1 32 Quantitative Analysis Laboratory 12 General Physics 42 General Physics 42 Introductory Biology 1 4 Introductory Biology I 4 Introductory Biology I 4 Introduction to Microbiology 42 Organic Chemistry 32 Organic Chemistry 12 Organic Chemistry 12 Organic Chemistry 12 Organic Chemistry 13 Introductory Physical Chemistry 32 Introductory Physical Chemistry 33 Introductory Physical Chemistry 33 Introductory Physical Chemistry 33 Physical Chemistry Laboratory 1 Introductory Physical Chemistry 33 Introductory Chemistry 13 Introductory Chemistry 13 Introductory 13 Introduction to Microeconomics 31 Introduction to Microeconomics 31 General Psychology 31 Calculus 1 General Chemistry CHEM 103 CHEM 104 CHEM 214 **CHEM 220 CHEM 221** PHYS 201 **PHYS 202 BISC 207 BISC 208** BISC 371 CHEM 321 **CHEM 325 CHEM 322 CHEM 326** CHEM 418 **CHEM 419** CHEM 445 NTDT 200 **ECON 151** PSYC 201 MATH 221 Calculus I Analytic Geometry and Calculus A 4 MATH 241 Calculus II **MATH 222 MATH 242** Within the College FREC 235 FREC 408 Introduction to Data Analysis Research Methods

Within the Department

A minimum grade of C must be achieved for credits to count toward the fulfillment of 36 credits in FS; a minimum grade of 2 00 in 200-level courses must be achieved to proceed to upper-level courses; only 300level courses and a maximum of four credits of Special Problems/Independent Study (FOSC x66) may count toward the fulfillment of this

requirement		_
FOSC 265 FOSC 359 FOSC 365 FOSC 409 FOSC 410 FOSC 428	Seminar: Food Science Topics in Food Science Seminar: Food Science Food Processing I Food Processing II Food Chemistry	44
FOSC 429	Food Anglycic	
FOSC 439 FOSC 445	Food Microbiology Food Engineering Technology	
FOSC 446	Food Processing Engineering Jechnology	4 ~
FOSC 449	Food Biotechnology	44
May include I		2-4 ³
nization credi	ts and four credits of 100- and 200-level courses in Mili- Air Force may be counted toward the degree)	
CREDITS TO	TOTAL A MINIMUM OF	132

MINOR IN FOOD SCIENCE

The following minor in food science requires application and admission to the program and successful completion of 19 food science credits. The minor in Food Science provides students in other degree programs with an opportunity to acquaint themselves with food science. Completion of the minor will provide the student with a basic understanding of this complex technology which includes sciences as diverse as microbiology and engineering. Since Food Science is a multidisciplinary applied science, any student in any curriculum may minor in food science; however, the exact course requirements will be determined by the FSC minor adviser. Course selection would depend on completion of prerequisites and other science and math preparation.

Student Eligibility Requirements

- 1. The minor is awarded only to students who have applied and been admitted to the program.
- 2 A C grade or 2.00 or higher is required in all FOSC courses for the minor in Food Science. The minor in Food Science requires a minimum of 15 food science credits. Required FOSC 305/306 (3), and any 3 other FOSC courses
- 3 Successful completion of mathematics courses are required prior to taking food science courses for the minor

MATH 221 Calculus I (3) and MATH 222 Calculus II (3)

Number of credits required: 15

Select any 3	courses (12 credits) from:	
FOSC 409	Food Processing I	4
FOSC 410	Food Processing II	4
FOSC 428	Food Chemistry	4
FOSC 429	Food Analysis	
FOSC 439	Food Microbiology.	4
FOSC 445	Food Engineering Technology	4
FOSC 446	Food Process Engineering Technology I	4
FOSC 449	Food Biotechnology	4

FOSC 305/306 Food Science & Laboratory

Prerequisities may be waived Permission of instructor to register is based on individual student academic record and major. See a food science faculty member for advisement on readiness for specific FOSC courses and course selection for the minor.

CREDITS TO TOTAL A MINIMUM OF 15

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., 1 freshman year, 2 sophomore year, etc.

^{**}Minimum grade of C- required.
#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23 †A course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation

PLANT AND SOIL SCIENCES

Plant and Soil Sciences includes disciplines of study that apply chemical, biological, and physical principles toward insuring adequate food supplies in a safe and aesthetic environment. Faculty in the department have active teaching and research programs in plant molecular biology, botany, anatomy, physiology, taxonomy, genetics-plant breeding, cell and tissue culture, pathology, ornamental horticulture, landscape design, crop and vegetable science, soil chemistry, soil management, soil physics, and soil microbiology. Undergraduate students often are involved in some aspect of these research programs, which strengthens and broadens their understanding of science.

Students pursue a program of study leading to the degree Bachelor of Science in Agriculture. They can major in Plant Science and select one of four areas of concentration: general plant science, ornamental horticulture, agronomy, or pathology, or they can major in Environmental Soil Science.

Each candidate for a degree must earn a minimum of 124 credits; achieve a minimum cumulative grade point average of 2.00 on all work undertaken at the University of Delaware, and fulfill the course requirements of the degree program.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: PLANT SCIENCE CONCENTRATION: GENERAL PLANT SCIENCE			
CURRICULUA	A CREDITS*		
ENGL 110 Three credits	TY REQUIREMENTS Critical Reading and Writing** 3 1 in an approved course or courses stressing 3 1-4 al, ethnic, and/or gender-related content.#		
COLLEGE	REQUIREMENTS†		
Mathematics Computer Sc FREC 235, o	•		
Minimum of a areas: Food o	all and Biological Sciences 9-12 ^{1,2} one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology		
Six credits se	lected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language		
Minimum of a Black Americ	nces and Humanities 9 ² one course in three of the following areas: Anthropology, an Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or dies		
Minimum of e	iences 8 1 eight credits selected from one of the following areas: sysics, Geology, or Physical Science		
MAJOR RI	EQUIREMENTS†		
External to			
CHEM 101	General Chemistry 4 1		
CHEM 103	General Chemistry 4 ¹		
CHEM 102 or	General Chemistry 4 ¹		
CHEM 104 CHEM 213	General Chemistry 4 1 Elementary Organic Chemistry 42		
One of the fo PHYS 101	llowing three courses: Introduction to Physics 4 ²		

GEOL 105 CHEM 214	General Geology Elementary Biochemistry	4 ²
Within the	Department	
PLSC 101	Botany I	42
PLSC 201	Botany II	π 2
PLSC 204	Introduction to Soil Science	A 3
PLSC 300	Principles of Animal and Plant Genetics	30
PLSC 303	Introductory Plant Pathology	. 10
PLSC 305	Soil Fertility and Plant Nutrition	40
PLSC 410	Introduction to Plant Physiology	3*
ELECTIVE Electives		46-50 ¹⁻⁴
May include credits of acti	Military Science, Music, or Physical Education (Only two vity-type Physical Education and/or two credits of perform anization credit may be counted toward the degree.)	
•	TOTAL A MINIMUM OF	124
DEADER. F	A CULTION OF CALIFORNIA AND CAUTION	
	SACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE	
	RATION: ORNAMENTAL HORTICULTURE	
CURRICULUM		CREDITS*
		CKEDITO
	TY REQUIREMENTS	_ 1
ENGL 110	Critical Reading and Writing** in an approved course or courses stressing	3 1-4
multiculture	al, ethnic, and/or gender-related content #	3 ·
	REQUIREMENTS†	
•	cs and Computer Science	
		3 1
Computer Sci	course ence course selected from CISC 105, EGTE 111,	3 ¹
FREC 235	, or equivalent	
Agricultura	l and Biological Sciences	9-12 ^{1,2}
Minimum of o	ne course outside the student's major in three of the followir	ıg
	nd Resource Economics, Food Science, Agricultural Engi-	
	al Science, Entomology and Applied Ecology, or Biology	_
Literature c	ınd Arts	
	ected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language	
Social Scien	nces and Humanities	9 ²
	one course in three of the following areas: Anthropology,	
Black Americ	an Studies, Criminal Justice, Economics, Education, Geog-	•
raphy, History	, Philosophy, Political Science, Psychology, Sociology, or	
Women's Stud	dies.	,
Physical Sci	iences	8 ¹
	ight credits selected from one of the following areas: ysics, Geology, or Physical Science	
MAJOR RE	QUIREMENTS†	
External to		
CHEM 101	General Chemistry	41
or		
CHEM 103	General Chemistry	4 ¹
CHEM 102	General Chemistry	4 ¹
or		
CHEM 104 CHEM 213	General Chemistry Elementary Organic Chemistry	4 ¹ 4 ²
	llowing three courses:	
PHYS 101	Introduction to Physics	4 ²
GEOL 105	General Geology	44
CHEM 214	Elementary Biochemistry	3 ²
Within the I	Department	
PLSC 101	Botany I	42
PLSC 201	Rotany II	1 ²
PLSC 204	Introduction to Soil Science	A -
PLSC 300	Principles of Animal and Plant Genetics	

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹freshman year, ²sophomore year, etc **Minimum grade of C- required.

^{**}Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23 †A course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation.

PLSC 303	Introductory Plant Pathology 43		General Chemistry	
PLSC 305 PLSC 410	Soil Fertility and Plant Nutrition	or CHEM 104 CHEM 213	General Chemistry Elementary Organic Chemistry	41
Within the	Concentration			
Group One	e: Required courses	One of the for PHYS 101	ollowing three courses: Introduction to Physics	₁ 2
PLSC 133	Ornamental Horticulture	GEOL 105	Canada Caalagu	. 12
PLSC 211	Herbaceous Landscape Plants 32	CHEM 214	Elementary Biochemistry	3 ²
PLSC 212	Woody Landscape Plants 32	¥¥7541.5		
PLSC 422	Plant Propagation 34 Elements of Entomology 32		Department	. 2
ENTO 205 ENTO 305	Entomology Laboratory 2 ³	PLSC 101	Botany I Botany II	42
		PLSC 201	Introduction to Soil Science	42
	s: Select a minimum of 12 credits from the following:	PLSC 204 PLSC 300	Principles of Animal and Plant Genetics	23
PLSC 302	Vegetable Science 33	PLSC 300	Introductory Plant Pathology	₄ 3
PLSC 332	Basic Landscape Design I	PLSC 305	Soil Fertility and Plant Nutrition	1 3
PLSC 402	Plant Taxonomy 33,4	PLSC 410	Introduction to Plant Physiology	3.4
PLSC 403				
PLSC 411 PLSC 412	Diagnostic Plant Pathology 23,4 Diagnostic Plant Pathology Laboratory 1-63,4	Within the	Concentration	
PLSC 417	Greenhouse Management 43,4	Group one	Required courses	
PLSC 602	Physiological Plant Productivity 34	PLSC 151	Introduction to Crop Science	3 🚶
PLSC 607	Plant and Soil Water Relations 34	PLSC 401	Agronomic Crop Science	
PLSC 615	Vascular Plant Anatomy 3	PLSC 411	Diganostic Plant PathologyT	70,7
PLSC 621	Plants and Design	PLSC 412	Diagnostic Plant Pathology Laboratory‡	1-02,-
PLSC 623	Plant Cell and Tissue Culture 3 ⁴	CHEM 214	Elementary Biochemistry	11.2
ELECTIVE	F.C	CHEM 216 ENTO 205	Elementary Biochemistry Laboratory Elements of Entomology‡	22
		ENTO 305	Entomology Laboratory	23
May include credits of act	17-21 ¹⁻⁴ Military Science, Music, or Physical Education (Only two tivity-type Physical Education and/or two credits of perform-		s: Select a minimum of 12 credits in consultation with your faculty adviser	12 ^{3,4}
_	ganization credit may be counted toward the degree.)	ELECTIVE	ES	
CREDITS TO	TOTAL A MINIMUM OF 124	Flectives	בע	11-20 1-4
	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE		ganization credit may be counted toward the degree.)	
	TRATION: AGRONOMY		TOTAL MINIMUM OF	124
CURRICULUA	TRATION: AGRONOMY CREDITS*	DEGREE: I	BACHELOR OF SCIENCE IN AGRICULTURE	124
CONCENT CURRICULUM UNIVERSI ENGL 110	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing**	DEGREE: I	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE	124
CONCENT CURRICULUA UNIVERSI ENGL 110 Three credits	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY	124 CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I MAJOR: F CONCENT	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY	
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE PRATION: PATHOLOGY A TY REQUIREMENTS	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Mathematics	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 al, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31	DEGREE: I MAJOR: F CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1-4 and, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.#	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1-4 and, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I MAJOR: F CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE FRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content # REQUIREMENTS†	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31-4 idence course selected from CISC 105, EGTE 111, 31-5 io, or equivalent all and Biological Sciences 9-12 1,2	DEGREE: I MAJOR: F CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathemati	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE (RATION: PATHOLOGY) A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minicultura Gregs: Food of	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1-4 in an approved course or courses stressing 3 1-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE FRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content # REQUIREMENTS†	CREDITS*
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of a reas: Food a neering, Anin	TRATION: AGRONOMY M CREDITS* TY REQUIREMENTS Critical Reading and Writing** 3 1-4 in an approved course or courses stressing 3 1-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31 1 in an approved course selected from CISC 105, EGTE 111, 3 1 in an approved course selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in an approved selected from CISC 105, EGTE 111, 3 1 in approved selected	DEGREE: I MAJOR: F CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, io, or equivalent	31 31-4 31 31
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agriculture Minimum of careas: Food oneering, Anin Literature of Six credits se	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 3 1-4 in an approved course or courses stressing 3 1-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 3 1 in an and Biological Sciences 9-12 1,2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62 elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of areas: Food a	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111,, or equivalent all and Biological Sciences one course outside the student's major in three of the followin and Resource Economics, Food Science, Agricultural Engi-	31.4 31.4 31 31.4
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of areas: Food a neering, Anin Literature of Six credits se Communications	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31-4 in and Biological Sciences 9-12 1,2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62 elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of areas: Food a	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY ATY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, i, or equivalent al and Biological Sciences one course outside the student's major in three of the following	31.4 31.4 31 31.4
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of a areas: Food a neering, Anin Literature a Six credits se Communicati	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 3 1-4 in an approved course or courses stressing 3 1-4 in an approved course or courses stressing 3 1-4 in an approved course or courses stressing 3 1-4 in and Action Course 3 1-4 ics and Computer Science course 3 1-7 ics and Computer Science course 3 1-7 ics and Biological Sciences 9-12 1-2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62 elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language naces and Humanities 92	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of careas: Food careas: Food careary, Anir	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY ATY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, i, or equivalent al and Biological Sciences one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology	31.4 31.4 31 31.4
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of a areas: Food a nearing, Anin Literature of Sc communicati Social Scien Minimum of a American Stu	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31-4 in and Biological Sciences 9-12 1,2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62 elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Soc FREC 235 Agriculture Minimum of careas: Food oneering, Anir Literature Six credits se	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111,, or equivalent all and Biological Sciences one course outside the student's major in three of the followin and Resource Economics, Food Science, Agricultural Engi-	31 31-4 31 31 9-12 ^{1,2}
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematic Mathematics Computer Sc FREC 235 Agriculture Minimum of a areas: Food a Six credits se Communicati Social Scien Minimum of a American Stury, Philosophy	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 al, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31- in or equivalent 31-3 in or equivalent 31-4 in or equivalent 3	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of areas: Food aneering, Anin Literature of Six credits se Communication	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, or, or equivalent all and Biological Sciences one course outside the student's major in three of the followin and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language.	31 31-4 31 9-12 ^{1,2} 9
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of careas: Food careas:	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 in an approved course or courses stressing 31-4 CREQUIREMENTS† ics and Computer Science course 31- in or equivalent 31- in or equivalent 31- in and Biological Sciences 9-12 1,2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62- selected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language naces and Humanities 92 naces and Humanities 92 naces and Humanities 92 naces and Humanities 94 processing a process of the following areas: Anthropology, Black dies, Criminal Justice, Economics Education, Geography, History, Political Science, Psychology, Sociology, or Women's Studies.	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agriculture Maintern of areas: Food a neering, Anir Literature Six credits se Communicati Social Scien	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, in, or equivalent all and Biological Sciences cond Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language. Inces and Humanities	31 31-4 31 9-12 ^{1,2} 9
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of a areas: Food a nearing, Anin Literature of Six credits, Anin Literature of Six credits Scien Minimum of a American Stury, Philosophy Physical Sc Minimum of Chemistry, Ph	TRATION: AGRONOMY M CREDITS* CTY REQUIREMENTS Critical Reading and Writing** 31-4 in an approved course or courses stressing 31-4 in an approved course or courses stressing 31-4 in ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course 31-4 in equivalent 31-7 in equivalent 31-7 in and Biological Sciences 9-12 1,2 one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts 62 interest from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language inces and Humanities 92 inces and Humanities 92 inces and Humanities 94 inces and Humanities 95 inces and Humanities 97 inces and Humanities 97 inces and Humanities 98 inces and Humanities 98 inces and Humanities 99 inces and Humanities 98 inces and Humanities 98 inces and Humanities 99 inces and Humanities 99 inces and Humanities 99 inces and Humanities 99 inces and Humanities 98 inces and Humanities 99 inces and Humaniti	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer So FREC 235 Agriculture Minimum of areas: Food an areas: Foo	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, ,, or equivalent al and Biological Sciences one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts lected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language maces and Humanities one course in three of the following areas: Anthropology, and Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or	CREDITS* 31313131
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agriculture Minimum of a areas: Food in Literature a Six crediting, Anin Literature of Social Scien Minimum of a American Starry, Philosophy Physical Sc Minimum of Chemistry, Ph MAJOR RI	CREDITS* CTY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course dience course selected from CISC 105, EGTE 111, dience course or course selected from CISC 105, EGTE 111, dience course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts cleated from the general areas of English, Art, Art History, Ion, Music, Theatre, or Foreign Language Inces and Humanities Inces and Humanities P2 Inces and Humanities Inces and Humanitie	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Soc FREC 235 Agriculture Minimum of areas: Food aneering, Anir Literature of Six credits se Communicati Social Scie Minimum of Black Americ raphy, Histor Women's Stu	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY ATY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, io, or equivalent all and Biological Sciences one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts elected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language mees and Humanities one course in three of the following areas: Anthropology, y, Philosophy, Political Science, Psychology, Sociology, or dies	CREDITS* 31 31-4 31 31 9-12 9 62
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agricultura Minimum of a areas: Food in Literature of Social Scien Minimum of a American Story, Philosophy Physical Sc Minimum of Chemistry, Ph MAJOR RI External to	CREDITS* CTY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing ral, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, 31 5, or equivalent ral and Biological Sciences one course Outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts selected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language naces and Humanities neces and Humanities percentage of the following areas: Anthropology, Black dies, Criminal Justice, Economics Education, Geography, History, Political Science, Psychology, Sociology, or Women's Studies seight credits selected from one of the following areas: eight credits selected from one of the following areas: EQUIREMENTS† the College	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Soc FREC 235 Agriculture Minimum of a areas: Food a neering, Anir Literature of Six credits se Communicati Social Scie Minimum of Black Americ raphy, Histor Women's Stu Physical Soc	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, io, or equivalent all and Biological Sciences one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts elected from the general areas of English, Art, Art History, on, Music, Theatre, or Foreign Language mees and Humanities one course in three of the following areas: Anthropology, y, Philosophy, Political Science, Psychology, Sociology, or dies stiences	CREDITS* 31 31-4 31 31 9-12 9 62 92
CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematics Computer Sc FREC 235 Agriculture Minimum of a areas: Food in Literature a Six crediting, Anin Literature of Social Scien Minimum of a American Starry, Philosophy Physical Sc Minimum of Chemistry, Ph MAJOR RI	CREDITS* CTY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content # CREQUIREMENTS† ics and Computer Science course dience course selected from CISC 105, EGTE 111, dience course or course selected from CISC 105, EGTE 111, dience course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts cleated from the general areas of English, Art, Art History, Ion, Music, Theatre, or Foreign Language Inces and Humanities Inces and Humanities P2 Inces and Humanities Inces and Humanitie	DEGREE: I MAJOR: I CONCENT CURRICULUM UNIVERSI ENGL 110 Three credits multicultur COLLEGE Mathematic Mathematics Computer So FREC 235 Agriculture Minimum of a areas: Food a neering, Anir Literature of Six credits se Communicati Social Scie Minimum of Black Americ raphy, Histor Women's Stu Physical Sc Minimum of	BACHELOR OF SCIENCE IN AGRICULTURE PLANT SCIENCE TRATION: PATHOLOGY A TY REQUIREMENTS Critical Reading and Writing** in an approved course or courses stressing al, ethnic, and/or gender-related content.# REQUIREMENTS† ics and Computer Science course ience course selected from CISC 105, EGTE 111, ,, or equivalent al and Biological Sciences one course outside the student's major in three of the following and Resource Economics, Food Science, Agricultural Enginal Science, Entomology and Applied Ecology, or Biology and Arts lected from the general areas of English, Art, Art History, ion, Music, Theatre, or Foreign Language maces and Humanities one course in three of the following areas: Anthropology, and Studies, Criminal Justice, Economics, Education, Geog- y, Philosophy, Political Science, Psychology, Sociology, or	CREDITS* 31 31-4 31 31 9-12 9 62 92

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., \$1 \text{freshman year, 2} \text{sophomore year, etc} \$\$^*\$Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail. See page 23 tA course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation.

MAJOR RI	EQUIREMENTS†
External to	the College
CHEM 101	General Chemistry 4 ¹
CHEM 103	General Chemistry 4 ¹
CHEM 102 or	General Chemistry
CHEM 104 CHEM 213	General Chemistry 4 1 Elementary Organic Chemistry 42
	llowing three courses:
PHYS 101 GEOL 105	Introduction to Physics 4 ² General Geology 4 ²
CHEM 214	Elementary Biochemistry 3 ²
	Department
PLSC 101	Botany I
PLSC 201	Botany II 42 Introduction to Soil Science 43
PLSC 204 PLSC 300	Principles of Animal and Plant Genetics 33
PLSC 303	Introductory Plant Rathology 43
PLSC 305	Soil Fertility and Plant Nutrition 43
PLSC 410	Introduction to Plant Physiology 3 ⁴
	Concentration
BISC 207	Required courses Introductory Biology I
BISC 208	Introductory Biology II
BISC 371	Introduction to Microbiology 4°
ENTO 305	Entomology Laboratory 2 ³
	Select a minimum of 12 credits from the following:
PLSC 401	Agronomic Crop Science
PLSC 411	Diagnostic Plant Pathology
PLSC 412 PLSC 413	Diagnostic Plant Pathology Laboratory 1.6 3.4 Principles of Plant Disease Control 3.4
PLSC 429	Introductory Mycology 43,4
PLSC 602	Physiological Plant Productivity 3 7 7
PLSC 605	Plant Breeding 3 ^{3,4}
PLSC 607	Plant and Soil Water Relations 3 57
PLSC 609	Plant Microtechnique 3 3,4 Plant Cell and Tissue Culture 3 3,4
PLSC 623 ENTO 465	Seminar 13,4
ELECTIVE	
Electives	20-24 1-4
May include I	Military Science, Music, or Physical Education (Only two
credits of acti	vity-type Physical Education and/or two credits of perform-
-	anization credit may be counted toward the degree.)
CREDITS TO	TOTAL A MINIMUM OF 124
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	ACHELOR OF SCIENCE IN AGRICULTURE NVIRONMENTAL SOIL SCIENCE
CURRICULUM	CREDITS*
UNIVERSIT	TY REQUIREMENTS
ENGL 110	Critical Reading and Writing** 31 in an approved course or courses stressing 31-4
Three credits i	n an approved course or courses stressing 3 1-4
	al, ethnic, and/or gender-related content #
and the second second	REQUIREMENTS†
Mathematic	s and Computer Science
Computer Scie	course 31 ence course selected from CISC 105, EGTE 111, 31 or equivalent
	I and Biological Sciences 9-12 1,2
Minimum of o	ne course outside the student's major in three of the following
	nd Resource Economics, Food Science, Agricultural Engi-
	al Science, Entomology and Applied Ecology, or Biology
Literature a	nd Arts 6 ²
Six credits sele	ected from the general areas of English, Art, Art History,

	nces and Humanities 9 one course in three of the following areas: Anthropology,	2
Black Americ Geography, Sociology, o	can Studies, Criminal Justice, Economics, Education, History, Philosophy, Political Science, Psychology, r Women's Studies	
Physical S	ciences 8	1
Minimum of Chemistry, Pl	eight credits selected from one of the following areas: hysics, Geology, or Physical Science	
	EQUIREMENTS†	
External to	the College	
CHEM 101 or	General Chemistry 4	1
CHEM 103	General Chemistry 4	1
CHEM 102	General Chemistry 4	
Or CHEM 104	General Chemistry 4	1
CHEM 213	Organic Chemistry 4	2
CHEM 220	Quantitative Analysis 3 Quantitative Analysis Laboratory 1	2
CHEM 221 ENGL 410	Technical Writing 3	4
GEOG 220	Meteorology 3	_
GEOL 107	General Geology I	
MATH 221	Calculus 3	
PHYS 201	General Physics 4	2
Within the	College	
EGTE 103	Land and Water Management 2	1
EGTE 113	Land Surveying	1
EGTE 328	Agricultural Waste Management 3 Elementary Agricultural Economics 3	3
FREC 120	Elementary Agricultural Economics	
Within the	Department	
PLSC 101	Botany I	1
PLSC 151	Introduction to Crop Science	1
PLSC 204	Introduction to Soil Science	_
PLSC 303	Introductory Plant Pathology	•
PLSC 305 PLSC 401	Soil Fertility and Plant Nutrition 4 Agronomic Crop Science 3	3
PLSC 608	Soil Chemistry 3	4
PLSC 619	Soil Microbiology 3	4
ELECTIVE		3.4
Electives		, _ , _ ,
May include BISC 321	the following suggested courses or other electives Environmental Biology	3
FREC 235	Introduction to Data Analysis 3	
FREC 444	Feonomics of Environmental Management 3	4
GEOG 235	Conservation of Natural Resources	_
GEOL 415	General Geomorphology 31	~,~
GEOL 428	Hydrogeology	•
GEOL 421 PLSC 603	Environmental and Applied Geology 3 Soil Physics 3	4
POSC 350	Politics and the Environment 3	4
	TOTAL A MINIMUM OF 124	
CKEDIIS IO	IVIAL A MINIMUM OF 124	

GENERAL AGRICULTURE

For the student who does not wish to specialize in one field, the major in general agriculture is offered.

DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: GENERAL AGRICULTURE

CURRICULUM	CRED	ITS	S
UNIVERSITY REQUIREMENTS			
ENGL 110 Critical Reading and Writing** Three credits in an approved course or courses stressing		3 .	
Three credits in an approved course or courses stressing		3 1	5
multicultural ethnic and/or gender-related content #			

^{*}Superior figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ² sophomore year, etc.

**Minimum grade of C- required.

#This requirement may be fulfilled through a course or courses taken to complete other degree requirements; it cannot be fulfilled by a course taken pass/fail See page 23
†A course may be applied toward both the major requirements and a college requirement, but credits are counted only once toward the total credits for graduation.

COLLEGE REQUIREMENTS	
Mathematics and Computer Science	
Mathematics course Computer Science course selected from CISC 105, EGTE 111, FREC 235, or equivalent	
Agricultural and Biological Sciences	9-12 ^{1,2}
Minimum of one course outside the student's major in three of the following areas: Food and Resource Economics, Food Science, Agricultural Engineering, Animal Science, Entomology and Applied Ecology, Plant and Soil Sciences, or Biology	w-
Literature and Arts	6 ²
Six credits selected from the general areas of English, Art, Art History. Communication, Music, Theatre, or Foreign Language.	
Social Sciences and Humanities	9 ²
Minimum of one course in three of the following areas: Anthropology, Black American Studies, Criminal Justice, Economics, Education, Geography, History, Philosophy, Political Science, Psychology, Sociology, or Women's Studies	
Physical Sciences	8 ¹
Minimum of eight credits selected from one of the following areas: Chemistry, Physics, Geology	
External to the college	
A minimum of one course in written communications chosen from the folk ENGL 301 Problems in Composition ENGL 302 Advanced Composition ENGL 312 Written Communications in Business ENGL 410 Technical Writing	3 ^{3,4} 3
A minimum of one course in oral communications chosen from the follo COMM 200 Introduction to Human Communication Systems COMM 255 Fundamentals of Communication COMM 312 Oral Communication in Business COMM 350 Public Speaking COMM 356 Small Group Communication	3 ³ ,4 3 3 3
Within the college	
Thirty additional credits from any of the following departments: Food and Resource Economics, Agricultural Engineering, Agricultural Animal Science and Agricultural Biochemistry, Entomology and App Ecology, or Plant and Soil Sciences (Fifteen of the 30 credits must b agriculture courses specifically required by other majors in the colled A maximum of twelve credits of Special Problem/Independent Study credits in all areas may be counted toward the degree, with a maximum of six credits in any one department.	e, olied e in ge.)
ELECTIVES	
Electives	56-59 1-4
May include Military Science, Music, or Physical Education (Only four credits of activity-type Physical Education and/or four credits of perforning Music organization credit may be counted toward the degree)	1-
COEDITE TO TOTAL A MINIMALIMA OF	120

PREVETERINARY INSTRUCTION

5 tudents in the College of Agricultural Sciences who desire to prepare for entrance to a veterinary school should consult with the Chair of the Department of Animal Science and Agricultural Biochemistry. See curriculum in department listing.

THE ASSOCIATE IN SCIENCE DEGREE

A two-year Associate in Science (A.S.) degree is offered by the College of Agricultural Sciences. This degree is ideal for students interested in agriculture who desire to spend only two years working toward a degree or who are unsure of their plans for higher education. Admission requirements for the associate degree are the same as those for the baccalaureate degree.

The Associate in Science as offered by the College of Agricultural Sciences provides a student the opportunity to follow an extremely flexible curriculum. The basic requirements are that the student must complete a minimum of 62 credit hours, with at least 30 of the credits earned within at least four of the six departments in the college. A minimum of 32 credits for the degree must be earned at the University of

Delaware. In addition, to obtain the degree the recipient must be in good academic standing (have a minimum grade point average of 2.0). A candidate must apply for the associate degree during the academic term in which all requirements for the degree are to be completed and must, at the time of application, be enrolled in the college. Later application requires the approval of the student's dean.

Although not necessarily recommended, a student could take all 62 credits in agricultural courses. A better approach would be for the student to take some course work in the areas of physical science, social science, English, and mathematics, along with his or her courses in agriculture. This approach would allow the student to more easily complete a B.S. degree program at a later date if desired.

The flexibility of the curriculum allows students to select only those courses that they and their academic adviser deem most important to their career objective and to complete a program in two years. For example, it would allow students with an interest in horticulture careers to enroll in predominantly plant science and/or horticulture courses to build a program geared to their specific needs. Animal science, agribusiness, entomology, and agricultural engineering technology are all potential areas in addition to plant science.

For those students in Kent and Sussex Counties, the first year could be taken in Dover or Georgetown in the University Parallel Program at the Delaware Technical & Community College. This option would require careful planning, since 30 credits of agricultural courses would be needed in the second year at the College of Agricultural Sciences in Newark.

There is no special application form for the associate degree program. Students would make application as if they were planning to work toward a B.S. degree in General Agriculture. Then, upon arriving on campus they would inform the college adviser that they plan to work toward an associate degree.

OTHER COLLEGE RESOURCES

Cooperative Extension System. The Delaware Cooperative Extension System is part of a nationwide system whose mission is to improve American agriculture and to strengthen American families and communities through the dissemination and application of research-generated knowledge and leadership techniques. It serves as an educational resource to the people of Delaware for extending research results and advances in technology.

A major thrust of the Cooperative Extension system is to target programs to address critical national issues. The accelerating expansion of technology, the deteriorating economic situation in portions of the agricultural sector, and the dynamic social conditions faced by many Americans, rural and metropolitan, require the Extension to reassess priorities and continuously adapt programs and activities to meet human needs.

Undergraduate students find opportunities to work with Extension specialists to gain practical experience in dealing with the public and in providing information to the public on a wide variety of agriculturally related topics.

Agricultural Experiment Station. The Experiment Station serves as the college's research arm, conducting research, fundamental and applied, in all phases of agriculture and rural life. By performing this function, it not only contributes to increased and efficient production and to improved marketing of agricultural products, but it serves to stabilize production by developing practices and techniques designed to protect crops and livestock against diseases, pests, and certain physical forces of nature. A majority of the professors in the College of Agricultural Sciences have appointments in the Experiment Station.

Students find many opportunities to work with these professors in independent study projects that introduce them to biological, economic, and engineering technology research in the agricultural disciplines. Advanced undergraduates often gain valuable experience working for a professor in a laboratory or in the field on Experiment Station-sponsored research.