Iowa State University **RESEARCH & DEVELOPMENT OPTION**
Department of Agronomy 2005-2007 Catalog

The following courses are required for all Agronomy students graduating in the Research and Development Option. This option is recommended for those individuals who wish to attend graduate school after completing the B.S. degree or who wish a strong science orientation in their B.S. program.

AGRONOMIC SCIENCES (24.5 credits)

AGRON 105	Leadership Experience	R	F, S, SS
AGRON 110	Prof. Dev. in Agronomy: Orientation	0.5(1-0)	F
AGRON 114	Principles of Agronomy	3(2-3to4)	F, S
AGRON 154	Fundamentals of Soil Science	3(2-2to4)	F, S
AGRON 206	Introduction to Meteorology	3(3-0)	F, S
AGRON 210	Prof. Dev. in Agronomy: Career Planning	1(1-0)	F, S
AGRON 230	Crop Structure-Function Relationships	3(3-0)	F, S
AGRON 310	Prof. Dev. in Agronomy: Internship	R	F, S, SS
AGRON 354	Soils and Plant Growth	3(3-0)	F, S
AGRON 354L	Soils and Plant Growth Laboratory	1(0-3)	F, S
AGRON 392	Systems Analysis in Crop & Soil Mgt.	3(2-3)	F, S
AGRON 410	Prof. Dev. in Agronomy: Senior Forum	1(1-0)	F, S

Plus 3 elective credits to be chosen in Agronomy with no more than 2 credits total from Agron 331, 370, 490, 491, and 496 allowed to meet the 3-credit requirement; Agron 320 may be used only as a biological science by Agronomy majors. (Additional courses in Agronomy strongly recommended. A minimum of 15 credits in Agronomy must be earned at Iowa State.)

BIOLOGICAL SCIENCES (19 credits)

BIOL 211 & 211L	Principles of Biology I & Lab	4(3-3)	F, S
BIOL 212 & 212L	Principles of Biology II & Lab	4(3-3)	F, S
AGRON 320	Genetics, Agriculture, and Biotechnology	3(3-0)	F, S
OR			
BIOL 313	Principles of Genetics	3(3-0)	F, S
(BIOL 313L recommended)			
BIOL 330A	Plant Physiology	4(3-3)	S
MICRO 302	Biology of Microorganisms	3(3-0)	F, S
MICRO 302L	Microbiology Laboratory	1(0-3)	F, S

COMMUNICATIONS (12.5 credits)

ENGL 104	First-Year Composition I	3(3-0)	F, S, SS
ENGL 105	First-Year Composition II	3(3-0)	F, S, SS
LIB 160	Library Instruction	0.5(1-0)	F, S
ENGL 314	Technical Communication	3(3-0)	F, S, SS
SP CM 212	Fundamentals of Public Speaking	3(3-0)	F, S, SS
OR			
AG EDS 311	Pres. & Sales Strat. for Ag. Audiences	3(3-0)	F, S

PHYSICAL SCIENCES (25 credits)

CHEM 177& 177L	General Chemistry & Laboratory	5(4-3)	F, S, SS
CHEM 178 & 178L	General Chemistry & Laboratory.	4(3-3)	F, S
CHEM 331 &331L	Organic Chemistry & Laboratory	4(3-3)	F, SS
CHEM 332 &332L	Organic Chemistry & Laboratory	4(3-3)	F, SS
(CHEM 211 and 211L recommended)			
GEOL 100	The Earth	3(3-0)	F, S, SS
PHYS 221	Introduction to Classical Physics I	5(4.5-1)	F, S, SS
(PHYS 222 recommended)			

MATHEMATICAL SCIENCES (11-14 credits)

MATH 165 & 166	Calculus I & II	4(4-0) & 4 (4-0)	F, S, SS
OR			
MATH 181 &182	Calc. & Diff. Equat. for Life Sci.	4(3-2) & 4(3-2)	F, S
STAT 104	Introduction to Statistics	3(2-2)	F, S, SS

COM S Elective (3 credits--advisor has a list of approved courses)
OR
Demonstration of computer proficiency (see advisor for procedures to meet requirement).

HUMANITIES, ETHICS, AND SOCIAL SCIENCE (15-18 credits)

Three credits each in ethics, U.S. diversity, international perspectives, agricultural issues, humanities, and social sciences (all courses must be from approved lists).

ELECTIVE CREDITS (15-21 credits)

128 total credits required for graduation