

Iowa State University
CURRICULUM IN HORTICULTURE
 Group Requirements
 2011-2012

Interpersonal and Public Communications Skills

12.5 credits

3	Engl	150-	Freshman Composition	_____
3	Engl	250-	Freshman Composition	_____
3	Engl	302-	Business Communication or	_____
3	Engl	314-	Technical Communication	_____
0.5	Lib	160-	Library Instruction	_____
3	Sp Cm	212-	Fundamentals of Public Speaking or	_____
3	AgEds	311	Presentation and Sales Strategies for Agricultural Audiences	_____
Communications-intensive requirement (see department for procedure)				

Mathematical Sciences

6-9 credits

SELECT **ONE** COURSE FROM THE FOLLOWING GROUP:

3	Math	140-	Fundamentals of Algebra for Science & Higher Math or	_____
3	Math	150-	Discrete Mathematics for Business & Social Science I or	_____
4	Math	165-	Calculus I or	_____
4	Math	181-	Calculus and Differential Equations for the Life Sciences	_____

AND SELECT **ONE** COURSE FROM THE FOLLOWING GROUP:

4	Stat	101-	Principles of Statistics or	_____
3	Stat	104-	Introduction to Statistics or	_____
5	Stat	226-	Introduction to Business Statistics or	_____
4	Stat	401-	Statistical Methods for Research Workers	_____

Physical Sciences

13 credits

4	Chem	163-	General Chemistry and	_____
1	Chem	163L-	Laboratory in General Chemistry or	_____
4	Chem	177-	General Chemistry and	_____
1	Chem	177L-	Laboratory in General Chemistry	_____

AND ONE COMPLETE COURSE FROM:

3	Chem	178 -	General Chemistry and	_____
1	Chem	178L-	Laboratory in General Chemistry or	_____
4	Phys	115x-	Physics for the Life Sciences or	_____
4	Phys	111-	General Physics	_____

AND **ONE** COURSE FROM THE FOLLOWING GROUP:

3	Chem	231-	Elementary Organic Chemistry and	_____
1	Chem	231L-	Laboratory in Elementary Organic Chem. or	_____
3	Chem	331-	Organic Chemistry and	_____
1	Chem	331L-	Laboratory in Organic Chemistry or	_____

For Landscape Design, Installation and Management and Turfgrass Management Options

3	BBMB	221	Structure and Reactions in Biochemical Processes	_____
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A student must take either (1) Chem 163/163L and Chem 164/164L series and Chem 231/231L series, or (2) Chem 177/177L and 178/178L and Chem 331/331L series. A student may take Phys 106 or 111 instead of 164/164L or 178/178L.

Biological Sciences**18 credits**

3	Biol	211-	Principles of Biology I and	_____
1	Biol	211L	Principles of Biology Laboratory I and	_____
3	Biol	212-	Principles of Biology II and	_____

SELECT **11** CREDITS FROM THE FOLLOWING GROUP:

3	Agron	260-	Soils and Environmental Quality	_____
3	Agron	316	Crop Structure-Function Relationships	_____
3	Agron	317-	Principles of Weed Science	_____
3	Agron	354-	Soils and Plant Growth	_____
1	Agron	354L-	Soil and Plant Growth Laboratory	_____
3	Biol	312-	Ecology	_____
3	Biol	313-	Principles of Genetics and	_____
1	Biol	313L-	Principles of Genetics Laboratory or	_____
3	Agron	316-	Crop Structure - Function Relationships	_____
3	Gen	320-	Genetics, Agriculture and Biotechnology	_____
3	Biol	314-	Principles of Molecular, Cell Biology and Biochemistry	_____
1	Biol	314L-	Principles of Molecular, Cell Biology and Biochemistry	_____
3	Biol	330-	Plant Physiology	_____
3	Biol	355-	Plants and People	_____
4	Biol	366-	Plant Systematics	_____
3	Biol	454-	Plant Anatomy	_____
3	Biol	474-	Plant Ecology	_____
3	Ent	370-	Insect Biology	_____
3	Ent	375-	Biological Control	_____
3	Ent	376-	Fundamentals of Entomology & Pest Management	_____
4	For	416-	Forest Pest Management	_____
2	PI P	391-	Clinical Plant Health	_____
3	PI P	408-	Principles of Plant Pathology	_____

Humanities, Ethics, and Social Science 15 credits

3 Credits in Humanities (Music, Art, Religion, History, Philosophy, Foreign Language)	_____
3 Credits in Ethics (from an approved list)	_____
3 Credits in International perspectives (from an approved list)	_____
3 Credits of US diversity (from an approved list)	_____
3 Credits in Social Science	_____
Problem solving requirement (see department for procedure)	
Environmental intensive requirement (see departmental procedure)	
Communication intensive requirement (see departmental procedure)	

Soil Science 3 credits

3	Agron	154	Fundamentals of Soil Science or	_____
3	Agron	155-	Soils for Horticultural Scientists	_____

Horticulture 30 credits

1	Hort	110-	Orientation in Horticulture	_____
3	Hort	221-	Principles of Horticulture	_____
3	Hort	321-	Horticulture Physiology	_____
2	Hort	445-	Horticulture Management and Administration	_____
SELECT A MINIMUM OF 21 CREDITS FROM THE FOLLOWING GROUP:				
3	Hort	224-	Contemporary Issues in the Green Industry	_____
3	Hort	225X-	Spanish for Horticulture	_____
3	Hort	240-	Woody Landscape Plants	_____
3	Hort	276X-	Grape and Wine Science	_____
2	Hort	281-	Landscape Graphics	_____
3	Hort	282-	Educating Youth through Horticulture	_____
2	Hort	283-	Pesticide Applicator Certification	_____

3	Hort	322-	Plant Propagation	_____
3	Hort	330-	Herbaceous Ornamental Plants	_____
4	Hort	332-	Greenhouse Operation Management	_____
3	Hort	338-	Seed Science and Technology	_____
2	Hort	341-	Shade Tree Cultivars	_____
3	Hort	342-	Landscape Installation, Establishment, Maintenance	_____
3	Hort	351-	Turfgrass Establishment and Maintenance	_____
1	Hort	351L-	Turfgrass Establishment and Maintenance Laboratory	_____
3	Hort	354	Soils and Plant Growth	_____
1	Hort	354L	Soils and Plant Growth Laboratory	_____
2	Hort	380	Principles of Landscape Design	_____
2	Hort	381	Beginning Landscape Design Studio	_____
1-2	Hort	391	Horticulture Management Experience	_____
R	Hort	398	Cooperative Education	_____
4	Hort	422-	Post-harvest Technology	_____
3	Hort	424-	Sustainable Horticultural Systems	_____
4	Hort	434-	Floriculture Crop Production I	_____
4	Hort	435-	Floriculture Crop Production II	_____
2	Hort	442-	Nursery Crop Production and Garden Center Management	_____
3	Hort	444-	Landscape Construction Management	_____
2	Hort	451-	Professional Turfgrass Management	_____
3	Hort	452-	Integrated Management of Diseases and Insect Pests of Turfgrasses	_____
3	Hort	453-	Sports Turf Management	_____
3	Hort	454-	Turf and Landscape Irrigation	_____
3	Hort	461-	Fruit Crop Production	_____
3	Hort	465X-	Horticulture Enterprise Management	_____
3	Hort	471-	Vegetable Crop Production and Management	_____
3	Hort	475-	Community Tree Management	_____
3	Hort	481-	Advanced Garden Composition	_____
3	Hort	484-	Organic Agricultural Theory and Practice	_____
1-4	Hort	490-	Independent Study	_____
1-2	Hort	491-	Seed Science Internship Experience	_____
Arr.	Hort	493-	Workshop in Horticulture	_____
R	Hort	495-	Ag Travel Course Preparation	_____
3	Hort	496-	Horticulture Travel Course	_____
2	Hort	511-	Integrated Management of Tropical Crops	_____
2	Hort	551-	Perennial Grasses	_____

Transfer students may transfer up to 10 credits of 200- and 300- level courses in the horticulture area

SPECIALIZED OPTIONS -(a minor in an Approved Area of Study may be substituted for the specialization option with permission of student's advisor.)

LANDSCAPE DESIGN, INSTALLATION, and MANAGEMENT - 12 CREDITS

Hort, 281, 240, 330, 341, 342, 351, 380, 381, 444 and 481 must be among the courses that fulfill the Horticulture requirements. Other recommended courses are Hort 322 and 332.

3	Acct	284-	Financial Accounting	_____
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AND NINE OR MORE CREDITS FROM THE FOLLOWING GROUP

3	Acct	215-	Legal Environment of Business	_____
3	Acct	285-	Managerial Accounting	_____
3	Acct	316-	Business Law	_____
3	Econ	234x-	Small Business Management (Prereq Econ 101)	_____
3	Econ	334-	Entrepreneurship in Agriculture (Prereq Econ 101)	_____
4	ComS	103-	Computer Applications	_____
3	Mgmt	310-	Entrepreneurship and Innovation (Prereq Econ 101)	_____
3	Mgmt	313-	Feasibility Analysis and Business Planning (Prereq Mgmt 310)	_____
3	Mgmt	370-	Principles of Organization and Management (Prereq Econ 101)	_____
3	Mgmt	371	Organizational Behavior (Prereq Mgmt 370)	_____
3	Mkt	340-	Principles of Marketing (Prereq Econ 101)	_____
3	Mkt	442-	Sales Management (Prereq Mkt 340)	_____

3	Mkt	447-	Consumer Behavior (Prereq Mkt 340)	_____
3	TSM	324-	Soil and Water Conservation Management	_____

HORTICULTURAL FOOD CROP PRODUCTION AND MANAGEMENT - 12 CREDITS

Hort. 276X, 422, 445, 461, and 471 must be among the courses that fulfill the Horticulture requirements.

3	Acct	284-	Financial Accounting	_____
AND <u>NINE</u> OR MORE CREDITS FROM THE FOLLOWING GROUP				
3	Acct	215-	Legal Environment of Business	_____
3	Acct	285-	Managerial Accounting	_____
3	Acct	316-	Business Law	_____
3	Agron	260-	Soils and Environmental Quality	_____
4	ComS	103-	Computer Applications or	_____
3	Econ	101-	Principles of Microeconomics	_____
3	Econ	102-	Principles of Macroeconomics	_____
3	Econ	230-	Farm Planning, Production, and Organization	_____
3	Econ	234x-	Small Business Management (Prereq Econ 101)	_____
3	Econ	334-	Entrepreneurship in Agriculture (Prereq Econ 101)	_____
3	Env S	293-	Environmental Planning	_____
3	Env S	324	Energy and the Environment	_____
3	Env S	382-	Environmental Sociology	_____
3	Env S	491-	Environmental Law	_____
3	FSHN	272-	Basic Principles of Food Processing	_____
2	FSHN	403-	Food Laws, Regulations and the Regulatory Process	_____
3	FSHN	405-	Food Quality Assurance	_____
3	FSHN	471-	Food Processing	_____
2	FSHN	472-	Food Processing Lab	_____
3	Mgmt	310-	Entrepreneurship and Innovation (Prereq Econ 101)	_____
3	Mgmt	313-	Feasibility Analysis and Business Planning (Prereq Mgmt 310)	_____
3	Mgmt	370-	Principles of Organization and Management (Prereq Econ 101)	_____
3	Mgmt	371	Organizational Behavior (Prereq Mgmt 370)	_____
3	Mkt	340-	Principles of Marketing (Prereq Econ 101)	_____
3	Mkt	442-	Sales Management (Prereq Mkt 340)	_____
3	Mkt	446-	Retailing (Prereq Mkt 340)	_____
3	Mkt	447-	Consumer Behavior (Prereq Mkt 340)	_____
3	TSM	324-	Soil and Water Conservation Management	_____
2	TSM	424-	Impacts of Agriculture on Water Quality	_____

ORNAMENTAL PLANT PRODUCTION AND GARDEN CENTER MANAGEMENT - 12 CREDITS

Hort 240, 322, 330, 332, 342, 422, 442, 434, and 435 must be among the courses that fulfill the Horticulture requirements.

3	Acct	284-	Financial Accounting	_____
AND <u>NINE</u> OR MORE CREDITS FROM THE FOLLOWING GROUP				
3	Acct	215-	Legal Environment of Business	_____
3	Acct	285-	Managerial Accounting	_____
3	Acct	316-	Business Law	_____
3	Agron	206-	Introduction to Meteorology	_____
4	ComS	103-	Computer Applications	_____
3	Econ	101-	Principles of Microeconomics	_____
3	Econ	102-	Principles of Macroeconomics	_____
3	Econ	230-	Farm Planning, Production, and Organization	_____
3	Econ	234x-	Small Business Management (Prereq Econ 101)	_____
3	Econ	334-	Entrepreneurship in Agriculture (Prereq Econ 101)	_____
4	EnSci	461-	Introduction to GIS	_____
3	Mgmt	310-	Entrepreneurship and Innovation (Prereq Econ 101)	_____
3	Mgmt	313-	Feasibility Analysis and Business Planning (Prereq Mgmt 310)	_____
3	Mgmt	370-	Principles of Organization and Management (Prereq Econ 101)	_____
3	Mgmt	371	Organizational Behavior (Prereq Mgmt 370)	_____
3	Mkt	340-	Principles of Marketing (Prereq Econ 101)	_____

3	Mkt	442-	Sales Management (Prereq Mkt 340)	_____
3	Mkt	446-	Retailing (Prereq Mkt 340)	_____
3	Mkt	447-	Consumer Behavior (Prereq Mkt 340)	_____
3	TSM	270-	Principles of Injury Prevention	_____

PUBLIC HORTICULTURE - 12 Credits

Those who choose this option must take Biol 366, Ent 375 or Ent 376, PI P 408 or PI P 391, Hort 240, 282, 283, 322, 330, 433, 445, and at least 1 credit of Hort 391. Other recommended courses are Hort 280,332, 341, 342, 351, 351L 380 and 381.

SELECT A MINIMUM OF 12 CREDITS FROM THE FOLLOWING GROUP

3	Acct 215-	Legal Environment of Business	_____
3	Acct 284-	Financial Accounting	_____
3	Acct 285-	Managerial Accounting	_____
3	Acct 316-	Business Law	_____
2	AgEdS 310-	Foundations of Public Ag Ed Programs	_____
3	AgEdS 401-	Planning Ag Ed Programs	_____
3	ComSt 102-	Fundamentals of Interpersonal Comm.	_____
3	ComSt 214-	Professional Communication	_____
3	ComSt 317-	Small Group Communication	_____
3	Econ 334-	Entrepreneurship in Agriculture (Prereq Econ 101)	_____
3	Engl 220-	Applied English Grammar	_____
3	Engl 303-	Free Lance Writing for Popular Magazines	_____
3	Engl 305-	Creative Writing - Nonfiction	_____
3	Engl 309-	Report and Proposal Writing	_____
3	Engl 313-	Writing for the World Wide Web	_____
3	Engl 415-	Business and Technical Editing	_____
3	Engl 416-	Graphic Communication in Business and Technical Writing	_____
3	EnSci 446-	Integrating GPS and GIS for Natural Resource Mgt.	_____
4	EnSci 461I	Introduction GIS	_____
3	Fin 301 -	Principles of Finance	_____
3	JLMC 201-	Reporting and Writing for the Mass Media	_____
3	JLMC 220-	Principles of Public Relations	_____
3	JLMC 310-	Fundamentals of Photojournalism	_____
3	JLMC 341-	Contemporary Magazine Publishing	_____
3	Mgmt 370-	Principles of Organization and Management (Prereq Econ 101)	_____
3	Mgmt 371-	Individual Behavior in Organizations (Prereq Econ 101)	_____
3	Mgmt 471-	Personnel and Human Resource Management	_____
3	SpCm 312-	Business and Professional Speaking	_____
3	SpCm 313-	Communication for the Classroom Teacher	_____

SCIENCE OPTION - 12 credits

Those who choose the Science Option must take Biology 330, Chemistry 177, 177L, 178, 178L, 331, 331L, 332, 332L, Math 165 or 181, and Physics 111 and 112.

3	BBMB 301-	Survey of Biochemistry <u>or</u>	_____
3	BBMB 404-	Biochemistry	_____
4	Math 166-	Calculus II <u>or</u>	_____
4	Math 182-	Calculus and Differential Equations for the Life Sciences	_____

AND FIVE OR MORE CREDITS FROM THE FOLLOWING GROUP:

2	BBMB 311-	Biochemistry Laboratory (for BBMB 301)	_____
3	BBMB 404-	Biochemistry -	_____
3	BBMB 405-	Biochemistry II	_____
3	BBMB 411-	General Biochemical Research Techniques	_____
3	Biol 313-	Principles of Genetics	_____
1	Biol 313L-	Genetics Laboratory	_____
3	Biol 314 -	Principles of Molecular Cell Biology and Biochemistry	_____
1	Biol 314L-	Molecular Cell Biology and Biochemistry Laboratory	_____

3	Biol	315-	Biological Evolution	_____
2	Chem	211-	Quantitative and Environmental Analysis	_____
2	Chem	211L-	Quantitative and Environmental Analysis Laboratory	_____
4	Chem	316-	Instrumental Methods of Chemical Analysis	_____
1	Chem	316L-	Instrumental Analysis Laboratory	_____
2	Chem	321L-	Laboratory in Physical Chemistry	_____
3	Chem	322L-	Laboratory in Physical Chemistry	_____
3	Chem	324-	Introductory Quantum Mechanics	_____
3	Com S	107-	Applied Computer Programming or	_____
3	Com S	207-	Programming I	_____
3	Gen	410-	Transmission Genetics	_____
3	Gen	411-	Molecular Genetics	_____

TURFGRASS MANAGEMENT - 12 credits

Hort. 240, 351, 351L, 451, 452, 453, 454, and 551 must be among the courses that fulfill the Horticulture requirements. Other recommended courses: Hort 330.

3	Acct	284-	Financial Accounting	_____
AND NINE OR MORE CREDITS FROM THE FOLLOWING GROUP:				
3	Acct	285-	Managerial Accounting	_____
3	Acct	316-	Business Law	_____
3	Agron	206-	Introduction to Meteorology	_____
3	Agron	260-	Soils and Environmental Quality	_____
3	Agron	317-	Principles of Weed Science	_____
3	Agron	338-	Seed Science and Technology	_____
4	Agron	356-	Soil, Fertilizers, and Water Management	_____
3	Agron	360-	Environmental Soil Science	_____
3	Agron	459-	Environmental Soil Chemistry	_____
4	Com S	103-	Computer Applications or	_____
3	Econ	234x-	Small Business Management (Prereq Econ 101)	_____
3	Econ	334-	Entrepreneurship in Agriculture (Prereq Econ 101)	_____
4	EnSci	461-	Introduction to GIS	_____
3	Ent	375-	Biological Control	_____
2	Env S	201-	Introduction to Environmental Issues	_____
3	Env S	324-	Energy and the Environment	_____
2	HRI	289-	Private Club Operations	_____
3	Mgmt	370-	Principles of Organization and Management (Prereq Econ 101)	_____
3	Mgmt	371-	Organizational Behavior (Prereq Mgmt 370)	_____
2	PI P	391-	Clinical Plant Health	_____
3	TSM	270-	Principles of Injury Prevention	_____
3	TSM	324-	Soil & Water Conservation Management	_____
3	TSM	424	Impacts of Agriculture on Water Quality	_____

A student may add business courses to the option with permission of the adviser.

Free Electives - **14 - 18 credits**

128.5 Total Credits