SYLLABUS
INTRODUCTION TO AGRICULTURAL EDUCATION

Credit: 2-3 semester hours – No Prerequisite

Course Description:
Introduction to Agricultural Education (2-3 semester hrs)
An introduction to Agricultural Education programs and delivery systems, state and federal policies; the nature of teaching in school and non-school settings; types and purposes of Agricultural Education; program components; approaches to teaching, teacher characteristics; community relationships; educational change and innovation; trends and developments in Agricultural Education. A general study of the nature of Agricultural Education along with its opportunities and responsibilities will be explored.

Recommended Text: *(see Suggested Resources)*

Objectives: As a result of the learning experiences afforded the class, students will be able to:

1. Identify and describe the career opportunities in agricultural education.
2. Identify and describe how Agricultural Education fits in with general education at the local and state levels.
3. Identify and describe the qualities, characteristics, duties, and responsibilities of a successful Agricultural Education teacher.
4. Identify and describe the qualities, characteristics, and components of a successful Agricultural Education program.
5. Identify the requirements regarding licensure of Agricultural Education teachers, and assess their own status relative to those requirements.
6. Identify and describe the Agricultural Education organizational structure in Illinois.

Key Concepts:
Major areas of interest include:

- the history of and current issues in Agricultural Education
- the nature of the educational process as it applies to agricultural education
- the characteristics, duties, and responsibilities of successful teachers
- the components of an Agricultural Education program
- the role of professional organizations in Agricultural Education
- state teacher licensure requirements
- student differences and special needs
- directed observation of Agricultural Education teachers in school classrooms

Topic Schedule: (*Note: need to include number of sessions per topic area)*

I. Career Opportunities in Agricultural Education

II. Scope and objectives of Career and Technical Education in Agriculture
   A. New Illinois Learning Standards
   B. College and career readiness
   C. AFNR Standards
   D. Common Career and Technical Core

III. Duties and responsibilities of an educator in agriculture

IV. Characteristics of an outstanding program in Agricultural Education

V. Programs of Agricultural Education
   A. Agriculture Literacy within K-6
   B. Grades 7-8
   C. High School & Area Career Centers
   D. Community Colleges
   E. Universities
   F. Community Education – Agricultural
   G. Quality Components of a successful Agricultural Education program

VI. FFA Programs and FFA Alumni

VII. Supervised Agricultural Experience Programs & AET

VIII. Facilities and equipment

IX. Instructional Methods and Resources

X. New developments and issues in Career and Technical Education

XI. Teacher Licensure
   A. Review test/licensure schedule (TAP or ACT+Writing or SAT+Writing; Content Area Test; edTPA)
   B. Recommend completion of TAP (or ACT+Writing or SAT+Writing) prior to end of sophomore year
   C. Additional Endorsements

XII. Leadership Activities
   A. Conferences and Conventions
   B. Coordinating a local Parliamentary Procedures contest

Suggested Activities:

1. Field trips to local high schools and Community Colleges & Universities
2. FFA CDE's and Award Programs and SAE Programs
3. Resource persons – such as successful Agricultural Education teachers, FCAE staff, FFA alumni, and Illinois FFA Center staff, ITCS for Record Books, CFE or Regional Office of Education Superintendent
4. Teach a mini unit
5. Participate in IAVAT Student Branch conferences & CFFA
6. Conduct an Agricultural Education (Ag Literacy) program at fairs or local school districts
7. Job shadowing, clinical experience, internships, partner with Ag in the Classroom

Qualifications of Instructors: The preferred qualifications of the instructor of any course to be accepted should be:

1. B.S. degree in Agriculture with certification to teach high school Agricultural Education.
2. Three (3) years experience in teaching high school Agriculture.
3. Masters degree in Agriculture with specialized training for teaching.

References and Supplemental Resources:

The Agricultural Education Magazine

ACTE Techniques Magazine

Official FFA Manual; latest edition

FFA Advisors Handbook

FFA Student Handbook

Handbook on Agricultural Education in Public Schools; Phipps et al

IAVAT/FFA Advisor's Guide

ISBE Curriculum available through MyCAERT
MAGIC Kits

Ag Teachers Manual (PDF download available)

New Horizons

IACTE Progress

Making a Difference
(LPS) Local Program Success (FFA.org)
www.teacheredcenter.ilstu.edu (ISU certification page)

agriculture.illinoisstate.edu/programs/education (ISU Ag Ed website)

aged.illinois.edu (U of I Ag Ed website)

www.siuc.edu; teachag.siuc.edu

www.wiu.edu/ag (WIU School of Ag website)

www.wiu.edu/cpep (WIU certification page)

www.isbe.net/certification/default.htm (ISBE certification website)

www.agintheclassroom.org

www.agriculturaleducation.org

www.naae.org

www.ffa.org

www.IAVAT.org

www.IACCAI.org

http://www.aces.illinois.edu

www.isbe.net/career/pdf/ag-ed-plan.pdf

isbe.state.il.us/ECS/default.htm

www.illinoisffa.org

www.teachag.net

www.mycaert.com

SYLLABUS
INTRODUCTORY MICROCOMPUTER SKILLS FOR AGRICULTURE
Revised October 2018

Credit: 3 or 4 Semester hours – No Prerequisite

Course Description:

Introductory Computer Skills in Agriculture (3 semester hrs)

Introduction to computer hardware, file manipulation, printers and the use of word processing, electronic presentations and communications, graphics, spreadsheet, database management and web development software. Also includes solution of agriculture data-related problems and use of prepared software and templates.

Objectives: As it relates to the Agricultural industry, the student will...

1. Effectively operate a computer keyboard, mouse, and other input peripheral devices.
2. Effectively use an operating system to manage files.
3. Effectively use word processing software.
4. Effectively use spreadsheet software.
5. Effectively use database management software.
6. Effectively use graphics and presentations software
7. Effectively use computer-related applications such as electronic communications, the World Wide Web, web development, e-mail, web search engines, keyword selection and evaluation of results.

Suggested Software/Text:

1. **SAM 2013 Assessment**
2. **Go with Microsoft Office; Current Edition**
3. **Exploring Microsoft Word Comprehensive**
4. **PCMars**
5. **Cattle Max**
6. **Slater Farms**
7. **Google Sites**
8. **Wix & Wordpress**
9. **Prezi & Canva**

Topics:	**Hours**
1. Introduction to the computer, hardware, and peripherals	1
2. Operating systems and file management	1-2
3. Word Processing	6-11
4. Spreadsheets	12-16
5. Database Management	7-9
6. Graphics and Presentations	4-6
7. Explore commercial or prepared software and templates	3-6
8. Electronic Communications and Internet Applications	3
9. E-commerce	optional
Total	**48**

Syllabus **2015**
Introductory Crop (Plant) Science

Credit: 3-4 semester hours (includes minimum 1 credit hour lab requirement)
No Prerequisite

Course Description:
Introduction to Crop or Plant Science (3-4 semester hours, which includes minimum 1 credit hour lab)
The basic principles of plant growth, including human and environmental influences and the theoretical and practical application of agronomic principles to crop production. Includes the historical and economic importance of crop plants for food, feed, and fiber; origin, classification, and geographic distribution of field crops; environmental factors and agronomic problems; crop plant breeding, growth, development, and physiology; cropping systems and practices; seedbed preparation, tillage, and crop establishment; pests and controls; and harvesting.

Objectives:
1. The student will be able to identify and explain the importance of crops on world food production.
2. Identify and describe the basic principles of plant growth.
3. Evaluate the theoretical and practical aspects of agronomic principles.

Suggested Texts: (Current Edition)
Crop Science: Principles and Practices. R. Mullen. Pearson Custom Publishing.
Introduction to Plant Science. R. Parker. Delmar Cengage Learning.
Plant Science: Growth, Development, and Utilization of Cultivated Plants. M. McMahon, A. Kofranek, and
V. Rubatzky, Pearson.
Principles of Field Crop Production. J. Martin, R. Waldren, and D. Stamp, Pearson.
Principles of Crop Production, Acquaah.
Introduction to Agronomy, Sheaffer & Moncada
Plant and Soil Science, R. Parker, Delmar Cengage Learning

Topics:	**Periods**
I. Importance of Crop Plants - Food, Feed, Fiber, Fuel	2 – 4
A. Contributions	
1. To humankind and their welfare	
2. To the GDP	
3. To state gross product	
4. To balance of trade, etc…	
B. Historical Significance	
C. Economics	
1. Social	
2. Comparative Advantage	
3. Markets	
4. Transportation	

5. Population

II. Origin, Classification, and Geographic Distribution of Field Crops 2 – 3

III. Important Field Crops of the World 1 – 3
- A. Grain
- B. Oil
- C. Fiber
- D. Sugar
- E. Medical
- F. Forage
- G. Biofuel

IV. Crop Environmental Factors 4 – 6
- A. Air
- B. Light
- C. Moisture (Water)
- D. Temperature
- E. Soil

V. Agronomic Problems, Perceptions and Questions 3 – 4
- A. World Population and Food Supply
- B. Pollution - Air, Water, Soil
- C. Organic and Sustainable Agriculture
- D. Energy
- E. Pesticides and Human Health

VI. Growth and Development of Crop Plants 4 – 6
- A. Botany of Plants
  1. Anatomy
  2. Morphology
- B. Identification
  1. Seeds
  2. Crop Plants
- C. Form and Function
  1. Structure
  2. Function
- D. Crop Propagation
  1. Asexual Propagation - Vegetative
  2. Sexual Propagation - Seed
     a. Seed Quality
     b. State Laws
     c. Crop Improvement Association (certified seed)
- E. Growth Regulation and Development - Plant Regulators in Agriculture Today and in the Future

VII. Crop Physiology 4 – 6
- A. Essential Elements and Plant Nutrition
- B. Role of Water and Water Management
- C. Photosynthesis / Respiration

VIII. Cropping Systems and Practices 5 – 7
- A. Monoculture

B. Rotation
C. Multiple Cropping and Intercropping
D. GIS/GPS Site Specific Applications
E. Organic Cropping Systems
F. Seedbed Preparation
G. Stand Establishment - Seeding Methods, etc…
H. Conservation Tillage Systems and Practices
I. Harvesting and Storing
J. Cover Crops

IX. Integrated Pest Management 4 – 5
A. Pests Control and Resistance Management
1. Insects
2. Diseases
3. Weeds
4. Nematodes

X. Crop Breeding and Improvement 3 – 5
A. Genetics
B. Plant Introduction
C. Selection
D. Hybridization
E. Mutation
F. Genetic Modification
G. Value Added Traits
H. Biotechnology

Suggested Lab Exercises:

Agronomy Equipment
Fertilization and Seed Formation
Morphology of Grasses and Legumes
Pest Identification, Scouting and IPM
Grain Grading and Crop Judging
Seed Identification, Quality and Certification
Vegetative and Floral Identification of Crops and Weeds
Germination, Emergence and Seedling Development of Monocots (Corn) and Dicots (Soybeans)
Crop Problem Scenarios (Troubleshooting)
DNA Extraction Exercise
Biotechnology
Tour Agronomic Companies
Yield Checks
Erosion Lab Using Real Farm Information
Research Analysis and Interpretation
Biofuels
Fertilizers and Applications

***Note**: Use of live plants or a series of demonstrations from seeds to mature plant development is recommended.*

Suggested References

Modern Corn and Soybean Production. R. Hoeft, E. Nafziger, R. Johnson, and S. Aldrich, MCSP Publications. (http://www.mcsp-pubs.com/)

Illinois Pesticide Applicator Training Manuals. Pubs Plus, University of Illinois. https://web.extension.illinois.edu/psep/manuals.php

Plant Pathology - Plant Disease Series (RPD), University of Illinois VISTA. (http://www.ag.**uiuc**.edu/~**vista**/pubs.html.l)

Field Crop Scouting Manual. Pubs Plus, University of Illinois. (https://pubsplus.illinois.edu/)

Weeds of the Great Plains. Nebraska Department of Agriculture. (http://www.nda.nebraska.gov/forms/nw11.pdf)

Crop Production. J. Vorst. (http://www.stipes.com/agriculture.html).

Corn & Soybean Field Guide. Purdue University. (https://ag.purdue.edu/agry/dtc/Pages/CSFG.aspx)

Ag Forage Field Guide, Purdue University – currently not available.)

Crop Production: Evolution, History, and Technology. C. Wayne Smith. Wiley.

Alfalfa Management Guide. D. Undersander, R. Becker, D. Cosgrove, E. Cullen, J. Doll, C. Grau, K. Kelling, M. Rice, M. Schmitt. American Society of Agronomy.

Illinois Agronomy Handbook, details

Crop Sciences Lab Manual, ITCS.

Weeds of the South by Charles T. Bryson and Michael S. DeFelice. University of Georgia Press

Weeds of the Midwest by Charles T. Bryson and Michael S. DeFelice. University of Georgia Press

Purdue Crop Management CDs
https://www.agry.purdue.edu/soybeancd/Crop-Series-Order-Form7-7-08.pdf

Pastures for Horses: A Guide to Rotational Grazing CD
http://learningstore.uwex.edu/%2FPastures-for-Horses-A-Guide-to-Rotational-GrazingCD-P98.aspx

Herbicide Mode of Action and Crop Injury Symptoms CD
http://shop.extension.umn.edu/Default.aspx

Illinois Agricultural Education Curriculum Resources
http://www.agriculturaleducation.org/curriculum/

YouTube

History Channel

USDA National Agricultural Statistics Service (NASS) http://www.nass.usda.gov/

How a Corn Plant Develops
http://www.biologie.uni-hamburg.de/b-online/library/maize/www.ag.iastate.edu/departments/agronomy/corngrows.html

How the Soybean Plant Develops
http://extension.agron.iastate.edu/soybean/production_growthstages.html

Soybean Diagnostic Guide
http://www.plantsci.missouri.edu/soydoc/startup.htm

Pest Management and Crop Development Newsletter (University of Illinois)
http://www.ipm.uiuc.edu/bulletin/index.php

Purdue Forage Information http://www.agry.purdue.edu/ext/forages/
University of Illinois IPM http://www.ipm.uiuc.edu/fieldcrops/index.html
Illinois Agricultural Education http://www.agriculturaleducation.org
Illinois High School Curriculum http://www.mycaert.com

2017

SYLLABUS
INTRODUCTORY AGRICULTURAL ECONOMICS

Credit: 3-4 semester hours
No prerequisite

Course Description

Introductory Economics of Food, Fiber, and Natural Resources
(3-4 semester hrs)
An introduction to the principles of economics including production principles; production costs, supply and revenue; profit maximization; consumption and demand; price elasticity; market price determination; and competitive versus noncompetitive market models. These principles are applied to agriculture and the role of agriculture in the United States and world economies. Other topics include a survey of the world food situation; natural, human and capital resources; commodity product marketing; and agricultural problems and policies.

Objectives:

1. To demonstrate a basic knowledge and understanding of the principles of economics and their application to agricultural problems.
2. To demonstrate a basic knowledge and understanding of the role of agriculture in the United States and world economies.

Suggested Textbooks: *The following books are suggested as texts for this course. Use of the current edition is recommended. Books are listed alphabetically by author.*

Agricultural Economics and Agribusiness, Cramer, Jensen, and Southgate, John Wiley
Agricultural Economics, Drummond and Goodwin, Prentice Hall
Introduction to Agricultural Economics, Penson, Capps, and Rosson, Prentice Hall
Economics of Resources, Agriculture and Food, Seitz, Nelson, Halcrow

References: *The following are recommended references for use with this course.*

FAST Tools and Resources, the University of Illinois Extension Farmdoc website
National Agricultural Statistics Service (NASS), United States Department of Agriculture
Illinois Department of Agriculture Statistics
US Census Data
The Farming Game
Economic Research Service

Topics:		**Periods**
I.	Economics and Economic Growth	3
II.	Characteristics of Agriculture	5
	A. Definition of Agriculture	
	B. Agricultural Economics as a Social Science	
	C. Structure of Agriculture Sectors	
	D. Inputs Used and Products of Agriculture	
III.	Principles of Economics	15
	A. Production Principles	
	B. Production Costs, Supply and Revenue	
	C. Principles of Profit Maximization and Loss Minimization	
	D. Principles of Consumption and Demand	
	E. Price Elasticity Concepts	
	F. Principles of Market Price Determination	
	G. Competitive vs. Non-Competitive Market Models	
IV.	Global Issues	5
	A. Population Growth	
	B. World Food Production Trends	
	C. Trade in Agricultural Products	
	D. The Role of Agriculture in Economic Growth	
V.	Marketing Food and Agricultural Products	5
	A. Functional and Institutional Approaches to Marketing	
	B. Costs of Marketing Food and Agricultural Products	
	C. Operation of the Futures Markets	
VI.	Agricultural Problems and Policy Analysis	7
	A. Goals and Policies and Programs	
	B. Price and Income	
	C. Resource Use	
VII.	Other Topics	5-8
	(May Include: Natural Resources, Land Economics, Locally Grown Foods, agricultural finance)	
	TOTAL	45-48

(Outline for a four-hour course that would include macroeconomics is continued on the next page)

If a four-hour course including macroeconomics is taught, topic VII from above moves to become topic X, with the additional topics areas VII to IX below included

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VII.	Measuring the National Economy	3
	A. The Circular Flow of Income	
	B. Measuring Inflation	
	C. Unemployment	
	D. Nominal vs. Real Income	
VIII.	Macroeconomic Policies	4
	A. Fiscal Policies	
	B. Monetary Policies	
IX.	International Trade	5
	A. Absolute vs. Comparative Advantage	
	B. Exchange Rates	
	C. Balance of Trade	
	D. Balance of Payments	
	E. Trade Policies	
	TOTAL	57-60

2017

SYLLABUS
INTRODUCTION AGRICULTURAL MECHANIZATION

Semester hours: 3-4
No Prerequisite

Course Description:

Introduction to Agricultural Mechanization (3-4 semester hrs). An introduction to agricultural power and machinery (engines, power transmission including hydraulics, tillage machinery, calibrations, and harvesting equipment), agricultural electrification and applications (circuits, motors, controls, and materials handling and processing), agricultural structures (plans, loads, construction materials and layout and design), and soil and environmental technology systems (surveying, mapping, drainage and conservation structures).

Objectives:

1. To provide an introduction to:
    A. Agricultural Power and Machinery
    B. Agricultural Electrification and Application
    C. Agricultural Structures
    D. Soil and Environmental Technology Systems

2. To develop skills using:
    A. Surveying Equipment
    B. Hand and power tools
    C. Measuring devices, tools, and diagnostic equipment
    D. Electrical wiring
    E. Emerging Technologies

3. To develop abilities in mathematical applications (solving technical problems in a logical and legible manner)

4. To provide opportunities for career exploration in agricultural mechanization.

5. To develop a vocabulary of agricultural mechanization principles and applications.

6. To develop and practice safe work skills.

Suggested Texts: (current editions)

Introduction to Agricultural Engineering Technology: A Problem Solving Approach, Field and Solie

Suggested Auxiliary Texts or References: (latest edition)

1. *Engineering Technology in Agriculture*, Southern Regional Land Grant College of Agriculture.
2. *Basic Engineering Principles*, Merkel
3. *Practical Farm Building*, Boyd
4. *Farm Field Machinery*, Finner
5. Selected AAVIM materials
6. Selected ITCS materials
7. Selected MWPS materials
8. Surveying auto tutorial aids; Mitchell and Bubenzer
9. Selected FOS and FOM manuals, John Deere and Company
10. Selected service manuals for engines and machinery
11. Illinois Ag Education library
12. Agricultural Mechanics Fundamentals and Applications, Herren

Topics:

The following list includes more topics than can be covered in one course. It is suggested that appropriate topics can be selected from each of the four main subject areas.

Subject Area	**Periods**
I. Agricultural Power and Machinery	10-16
A. Engines	
B. Power Transmission	
C. Tillage Planting, and Harvesting Equipment	
D. Calibrations	
II. Agricultural Electrification and Application	10-16
A. Circuits	
B. Motors	
C. Controls	
D. Material Handling and Processing	

Subject Area	**Periods**
III. Agricultural Structures	10-16
A. Plans	
B. Loads	
C. Construction Materials	
D. Layout and Design	
E. Metal Working	
IV. Environmental Technology Systems	10-16
A. Surveying	
B. Mapping	
C. Conservation Structures	
D. Drainage	

2017

SYLLABUS
INTRODUCTION TO HORTICULTURE

Credits: 3 or 4 Semester Hours

Course Description:

An introduction to the principles and practices involved in the development, production and use of horticultural crops (fruits, vegetables, greenhouse, turf, nursery, floral and landscape).

Introduction to Horticulture (3 or 4 semester hours). An introduction to the principles and practices in the development, production and use of horticultural crops (fruits, vegetables, greenhouse, turf, nursery, floral and landscape). Includes the classification, structure, growth and development, and environmental influences on horticultural plants: horticultural technology: and an introduction to the horticultural industries.

Upon course completion the student will be able to do the following:

1) Define and describe the significance of horticulture to society.
2) Demonstrate a working knowledge of the fundamental principles of plant growth and development.
3) Apply the fundamentals of plant growth and utilize practical applications in horticulture.
4) Define and demonstrate current technologies used in today's horticultural enterprises.

Suggested Texts (Current Editions):

1) *Biology of Horticulture.* Preece, John E. and Read, Paul E.
2) *Horticultural Science.* Janick. Freeman & Company
3) *Introduction to Horticulture*. Skirvin, Robert. Stipes.
4) *Plant Science: Growth, Development and Utilization of Plants.* McMahon, Kofranek, and Rubatsky.
5) *Introductory Horticulture.* H. Edward Riles and Carroll Shry. Delmar.
6) *Home Horticulture Principles and Practices,* Marietta Loehrlein, Delmar & Cengage
7) *Practical Horticulture Laura Rice & Robert Rice Pearson*
8) *Horticulture Principles & Practices, George Acquah, Pearson*

Supplemental Materials List

1) ISBE Core Horticulture Curriculum

2) Greenhouse Virtual Tours DVD. Author Dr. Mike Evans, University of Arkansas.

Course Outline:

	Topics	*Periods (without labs)*
I.	Introduction	2-4
A.	Scope and Importance: Local to Global	
B.	Historical Perspective	
C.	Careers and Opportunities	
II.	The Biology of Horticulture	8-10
A.	Classification of Horticulture Plants	
B.	The Structure of Horticultural Plants	
C.	Plant Growth and Development	
D.	Environmental Factors Affecting Plant Growth and Development (Light, Temperature, Nutrient Supply, Moisture, Atmosphere, Media)	
III.	The technology of Horticulture	16-20
A.	Controlling the Plant Environment	
B.	Directing Plant Growth	
C.	Biological Competition	
D.	Mechanisms of Propagation	
E.	Plant Improvement	
F.	Harvesting and Marketing	
IV.	The Industry of Horticulture	8-10
A.	Horticultural Geography	
B.	Horticultural Enterprises	
C.	Aesthetics of Horticulture	
V.	Additional/Optional Topics	3-4
A.	Examinations	
	Total	37-48

2016

SYLLABUS
INTRODUCTION ANIMAL SCIENCE

Credit: 3-4 semester hours; (includes minimum 1 cr. hr. lab requirement)
No prerequisite

It is recommended by the articulation committee that the maximum semester or quarter hours be included in the course.

Course Description

Introduction to Animal Science (3-4 semester hrs. includes minimum 1 cr. hr. lab requirement @ 1500 minutes per credit hour)
The application of the sciences of genetics, physiology, and nutrition to the improvement of the animal industries and an introduction to management and production practices. Includes animal breeds, breeding and selection; anatomy, physiology, nutrition, growth; environment, health and sanitation; products and marketing; production technology and economics; animal behavior; and current issues in animal science.

Objectives:

1. To demonstrate the application of the science of genetics; physiology and nutrition to the improvement of the animal science.
2. To acquaint the student with the management and production practices of these industries.
3. To familiarize the student with the products of these industries and their contribution to mankind and his environment.

Approved Texts:

Blakely and Blade, *The Science of Animal Husbandry*, current edition

Ensminger, *Animal Science*, current edition

Taylor and Field, *Scientific Farm Animal Production*, current edition

Topics:	**Periods**
I. Introduction	2-4
A. Scope and Importance	
B. History, Growth, and Development of the Animal Industries	
C. Careers and Opportunities	
II. Breeds	1-3
A. Beef, Dairy, Horses, Companion Animals, Poultry, Sheep and Swine	

III.	Breeding and Selection	7-9
	A. Principle of Genetics	
	B. Selection Systems	
	C. Improvement Program	
	D. Mating System	
IV.	Anatomy and Physiology	8-10
	A. Skeletal and Muscular Systems	
	B. Respiratory Circulatory Systems	
	C. Endocrine Systems	
	D. Reproductive Systems	
	1. Male	
	2. Female	
	a. Milk secretion	
	b. Physiology of egg laying	
	E. Digestive Systems	
V.	Nutrition	7-9
	A. Nutrients and Food Analysis	
	B. Requirements	
	C. Feedstuffs	
VI.	Growth	1-2
	A. Measurement of Growth	
	B. Factors affecting Growth	
VII.	Environment	2-4
	A. Temperature	
	B. Humidity	
	C. Light	
	D. Space	
	E. Adaptation	
VIII.	Health and Sanitation	3-5
	A. Sanitation Program	
	B. Disease Control Program	
	C. Parasite Control Program	
	D. Public Health	
	E. Biosecurity	
IX.	Product	8-10
	A. Meat	
	B. Milk	
	C. Eggs	
	D. Wool	

X. Marketing 2-4
- A. Systems
- B. Grading and Classification

XI. Production, Technology, and Economics 4-6
- A. Performance Standards
- B. Livestock Enterprises
  1. Contract farming
  2. Vertical integration
  3. Independent farming
- C. Enterprise Cost Analysis

XII. Animal Behavior 1-3
- A. Types of Animal

XIII. Current Issues 2-4
- A. Animal Welfare and Ethics
- B. Waste Management
- C. Biotechnology
- D. Food Safety

Recommendation

LABS: Will vary based on facilities/resources of each individual institution, but in general are coordinated with lecture topics.

2016

Syllabus
Introductory Floral Design

Credit: 2-3 semester hours No Prerequisite

Course Description: An introduction to the principles involved in the design of floral arrangements.

Introduction to Floral Design (2-3 semester hours). An introduction to the principles of design applied to floral arrangements, including color, forms and lines, balance, types of floral arrangements, floral materials and accessories, and production techniques.

Objectives:

1. The student will understand the basic principles and elements of floral design.
2. The student will have a working knowledge of the materials and accessories used in basic floral design.
3. The student will be proficient in the techniques of producing basic floral designs.

Suggested Texts:

The Art of Floral Design, (newest edition) Hunter. Delmar Press, 3rd Ed.
Step by Step Instructions for Everyday Designs, Teresa Lanker. Florist Review
Cut Flower Booklet. Holland Flower Council: 00298. Holland Flower Bulb Institute.
Flowers: Creative Design. Johnson, McKinley, Benz.
Principles of Floral Design: An Illustrated Guide, Pat Diehl Scace & Jim M. DelPrince
Workbook - Principles of Floral Design: An Illustrated Guide, Joyce K. Brattoni

Course Outline:

Topics:		Periods (Without Labs)
I.	Introduction and Brief History	1-2
II.	Floral Materials	3-4
	A. Flowers (Fresh, Dried, Artificial)	
	B. Accessories	
	C. Conditioning	
III.	Design	3-5
	A. Principles of Design	
	B. Elements of Design	
IV.	Color	2-3
	A. Spectrum	
	B. Pigment	
	C. Dimension – Hue, Value, Intensity	
	D. Lighting Effects	

V.	Linear Design used in Floral Design	2-3
	A. Formal	
	B. New Convention	
	C. Parallel Systems	
	D. Western Line	
VI.	Mass Design	2-3
	A. Triangular	
	B. Circular	
	C. Other	
VII.	Optional Topics	3-5
	A. Terrariums and Dish Gardens	
	B. Potted Plants – Decoration and Care	
	C. Organization and Operation of Retail Florist Shop	
	Total	16-25

Suggested Laboratories (Not necessarily in proper sequence)**:**

Wiring and Taping Techniques	Dried or Permanent Arrangements
Corsage Assembly	Color Harmonies
Centerpiece	Symmetrically-balanced
Arrangements	Contemporary Designs
Asymmetrically-balanced Arrangements	Hogarth Curve
Hand held/ hand tied	Flower and Foliage ID
Dish Garden/Terrarium Construction	Floral Preservatives
Holiday and Special Occasion Arrangements	Vase arrangement

Suggested References:

A Teacher's Guide to Flower Arrangement. Fox.
Extension Publications from Michigan, Ohio and Pennsylvania.
Educational Material. John Henry Company (cut flower ID cards).
Wire Service Visual Aids.
Basic Floral Design. TELEFLORA .
Florist Review Resources & Source Book
Floral Design Overlay Series. University of Illinois VAS #28.
Floriculture Bionda & Noland. Pearson
Floral Design & Interior Landscape Management, Noland. Pearson
The Cut Flower Companion. Mckinley
Flowers: Creative Design. Johnson, McKinley, Benz.
AIFD terminology book.
Cut Flower Companion, Pat Scace, Florida State Review.

Suggested Web Sites:

Florint.org
SierraFlowerFinder.com
AIFD.org

2016

SYLLABUS
INTRODUCTION TO SOIL SCIENCE

Credit: 3 or 4 semester hours (Minimum 1 cr. hr. lab required)
Prerequisite: 1 course in H.S. Chemistry; College Chemistry is strongly recommended; Geology suggested

Course Description:

Introduction to Soil Science (3 or 4 semester hours)
An introduction to the chemical, physical, and biological properties of soils; the origin, classification, and distribution of soils and their influence on people and food production; the management and conservation of soils; and the environmental impact of soil use.

Objectives:

1. To develop an understanding and knowledge of the basic and applied chemical, physical, and biological concepts in soil.
2. To develop an understanding of the origin, classification, and distribution of soils and their relationship to people and food production.
3. To develop an understanding of the management and conservation of soils.
4. To develop an understanding of the environmental impact of soil use.

Suggested Texts: (Current edition recommended)

Elements of the Nature and Properties of Soils, Brady, Nyle and Ray R Weil, Pearson.

The Nature and Properties of Soils, Brady, Nyle and Ray R Weil, Pearson.

Soil Science and Management, Plaster, Edward J., Delmar Publishers.

Understanding Soils, Illinois Soil Classifiers Assoc., USDA, NRCS

Soil Biology, NRCS

Laboratory Manuals: (Current edition recommended)

Introduction Soil Laboratory Manual, J.J. Hassett, Stipes.

Introductory Soil Science Laboratory Manual, Palmer and Troch, Iowa State.

Introductory Experimental Soil Science, Sabey, Klubek, Varsa, Chong.

Topics: Weeks

I. Introduction 1-2
   A. Definition of Soil
   B. Soils as a Natural Body
   C. Soil Components-Air, Water, Inorganic, and Organic Solids

II. Physical Properties 2-4
- A. Soil Separates
- B. Texture
- C. Aggregation and Structure Characteristics
- D. Temperature
- E. Color
- F. Properties of Soil Mixture
- G. Pore Space
- H. Bulk Density
- I. Particle Density
- J. Aeration and Drainage
- K. Compaction
- L. Soil Water Relationships

III. Chemical Properties 2-4
- A. Morphology of Colloids
- B. Chemistry of Clays
- C. Ionic Exchange
- D. Acidity, Alkalinity (pH) and Salinity
- E. Reactions in Liming and Acidification

IV. Biological Properties 2-3
- A. Soil Organic Matter
- B. C:N Relationships
- C. N Transformation
- D. Soil Organism
- E. Sulfur Transformation

V. Genesis and Classification 1-2
- A. Profile
- B. Soil Forming Factors
- C. Soil Survey Methods
- D. Soil Survey Reports
- E. Soil Distribution
- F. Classification System

VI. Conservation and Management 1-2

A. Drainage

B. Erosion: Mechanisms and Control

C. Irrigation

D. Land Use Classification

E. Environmental Quality
   1. Plant and Animal Waste
   2. Municipal and Industrial By-Products
   3. Nutrient Loading

F. Tillage Systems

G. Wetlands

H. Urban Soils

I. Soil Health

VII. Soil Fertility and Fertilizers 1

A. Essential Elements

B. Fertilizers

Possible Lab Exercise or Activities:
(Suggested minimum requirements would be a lab exercise or field trip for each major area of lecture.)
Origin and Classification
Soil Surveys
Productivity Indexes
Land Use Selection exercise, i.e., soil profile, description
Texture
Structure
Bulk Density and Pore Space (compaction) Moisture
N Transformation
Temperature
Ionic Exchange
Acidity, Alkalinity-pH
Nutrient Availability
Soil Organic Matter
Revised Universal Soil Loss Equation (R.U.S.L.E.)
Fertilizer Recommendations
Solu Bridge-Soluble Salts / EC

Conservation and Management
Using and Understanding GPS
Tour of Soil Testing Lab
Soil Sampling Procedure
Horticulture Soils
Urban Soils
Soil biological activity
Soil quality
Soil water relation

References: (Current edition recommended)

Soil Science Simplified, Khonke and Franzmeier, Waveland Press.
Soils and Soil Fertility, Troch, F.R. and Thompson, L.M., Oxford Press.
Soil Fertilizer Handbook, The Fertilizer Institute, Washington, D.C.
PPI & others.
Study manuals for CCA examination-American Society of Agronomy
Test bank and online aids from textbook authors and publishers including Elements of the Nature & Properties of Soil, Pearson
Fundamentals of Soil Science, Foth, H.D., Wiley Books
Math in Soil Science
NRCS Soil Quality Test Guide

Software:

ArcMap-ESRI
PPI - Nutrient management plan CCA CD
PPI - MEY Software
RUSLE Current NRCS
Digital Soil Survey Maps
Purdue soil program: www.agry.purdue.edu/courses/agry255/agry255.htm
NRCS Soils Web Sites
iFARM, United Soils Inc. website

Multi-media

No Till, Protecting the Heartland-Syngenta
Tracks to Tires-John Deere
Tread Lightly and Pull Heavy-Caterpillar Price of Bounty – U of I Extension
Point of Precision-PPI
Faces of Change-PPI
Point of Revolution-PPI
Conservation on Your Own-Soil Conservation Services, National Association of Conservation Districts Production Agriculture-Feeding People, Protecting the Environment, PPI
Forest Soils of Illinois Region 1 - Stronghurst, Fayette, Traer, Extension Services Prairie Soils of Illinois Region 1 - Tama, Muscatine, Sable,

Extension Services
Soil Health Test Kit video (Check with Sustainable Agriculture Society for availability)
How Soils Erode-University of Illinois
How Water Moves Through Soil
Good Farming in Karst Country-U of I Extension
Irrigation-Kaw Valley Films
Fertile Minds video, Potash corp. (www.fertile-minds.org)

Websites:

USGS aerial imagery and topographic maps http://tenaserver-usa.com

USDA Geospatial Database http://lighthouse.nrcs.usda.gov/lighthouse/

Illinois Agronomy Handbook http://www.ag.uiuc.eduliahi

Soil Science of Society of America web page http://www.soils.org/

American Society of Agronomy web page http://www.agronomy.org/

PPI web page http://www.ppi-far.org

National Conservation Research Service web page http://www.il.nrcs.usda.gov

University of Minnesota web page http://www.soils.umn.edularchive/imageslimages/thumbs

NRCS web soil survey

Math & Calculations for Agronomy and Soil Scientists, www.ipni.net

Penn State University soils website.

Soil eLibrary https://passel.unl.edu

Soil Orders http://www.cals.uidaho.edu/soilorders/