

# SEED SCIENCE

Administered by the Departments of Agricultural and Biosystems Engineering, Agronomy, Horticulture, and Plant Pathology.

Seed Science must be taken as a secondary major in conjunction with a primary major. The seed science program is designed for students with career interests in one or more aspects of the seed industry. Areas of study focus on seeds including production, conditioning, pathology, physiology, quality control, marketing, and seed plant designs.

## Student Learning Outcomes

Upon graduation, students should be able to:

1. Demonstrate understanding of the science and principles of seed production systems, including seed quality assessment and conditioning, and clearly communicate the importance of seeds to our society.
2. Articulate the opportunities in the seed industry for seed-related careers.
3. Apply seed science and technology knowledge for solving seed quality and production problems encountered in the seed industry.

## CURRICULUM IN SEED SCIENCE (SECONDARY MAJOR)

**Total Degree Requirement: 128 cr.**

**COMPLETE COMMUNICATION AND LIBRARY REQUIREMENTS OF PRIMARY MAJOR AND 3 CR. FROM THE FOLLOWING:**

|           |                                             |   |
|-----------|---------------------------------------------|---|
| ENGL 3020 | Business Communication                      | 3 |
| ENGL 3090 | Proposal and Report Writing                 | 3 |
| ENGL 3120 | Communicating Science and Public Engagement | 3 |
| ENGL 3140 | Technical Communication                     | 3 |
| SPCM 3120 | Business and Professional Speaking          | 3 |

### BIOLOGICAL SCIENCES: 7 CR.

|                            |                                                                     |   |
|----------------------------|---------------------------------------------------------------------|---|
| BIOL 2110<br>& 2110L       | Principles of Biology I<br>and Principles of Biology Laboratory I   | 4 |
| or BIOL 2120<br>& 2120L    | Principles of Biology II<br>and Principles of Biology Laboratory II |   |
| AGRON 3200<br>or BIOL 3130 | Genetics, Agriculture and Biotechnology<br>Principles of Genetics   | 3 |

### PHYSICAL SCIENCES: 8-9 CR.

|                         |                                                              |   |
|-------------------------|--------------------------------------------------------------|---|
| CHEM 1630<br>& 1630L    | College Chemistry<br>and Laboratory in College Chemistry     | 5 |
| or CHEM 1770<br>& 1770L | General Chemistry I<br>and Laboratory in General Chemistry I |   |

One of the following:

|            |                                       |   |
|------------|---------------------------------------|---|
| AGRON 2590 | Organic Compounds in Plants and Soils | 3 |
|------------|---------------------------------------|---|

|                      |                                                                                |   |
|----------------------|--------------------------------------------------------------------------------|---|
| BBMB 2210            | Structure and Reactions in Biochemical Processes                               | 3 |
| CHEM 2310<br>& 2310L | Elementary Organic Chemistry<br>and Laboratory in Elementary Organic Chemistry | 4 |

### MATHEMATICAL SCIENCES 6 CR.

|                   |                                                       |   |
|-------------------|-------------------------------------------------------|---|
| MATH 1400         | College Algebra                                       | 3 |
| or MATH 1500      | Discrete Mathematics for Business and Social Sciences |   |
| Statistics course |                                                       | 3 |

### AGRICULTURAL SCIENCES: 28-29 CR.

|                                                                   |                                        |     |
|-------------------------------------------------------------------|----------------------------------------|-----|
| AGRON 1810                                                        | Introduction to Crop Science           | 3   |
| or HORT 2210                                                      | Principles of Horticulture Science     |     |
| AGRON 1820                                                        | Introduction to Soil Science           | 3   |
| AGRON 2060                                                        | Introduction to Weather and Climate    | 3   |
| AGRON 2170<br>or AGRON 331C                                       | Weed Identification<br>Crops Practicum | 1-2 |
| AGRON 3160                                                        | Crop Structure-Function Relationships  | 3   |
| or HORT 3210                                                      | Horticulture Physiology                |     |
| AGRON 3540                                                        | Soils and Plant Growth                 | 3   |
| 9 credits from AGRON, HORT, or TSM (6 credits at 3000-4000 level) |                                        | 9   |

### ECONOMICS AND BUSINESS: 9 CR.

|                                 |                                      |   |
|---------------------------------|--------------------------------------|---|
| ECON 1010                       | Principles of Microeconomics         | 3 |
| Six credits from the following: |                                      | 6 |
| ACCT 2840                       | Financial Accounting                 |   |
| ECON 1020                       | Principles of Macroeconomics         |   |
| ECON 2300                       | Farm Business Management             |   |
| ECON 2340                       | Small Business Management            |   |
| ECON 2350                       | Introduction to Agricultural Markets |   |
| ECON 2360                       | Agricultural Selling                 |   |
| ECON 3340                       | Entrepreneurship in Agriculture      |   |
| MGMT 3700                       | Managing Organizations               |   |
| MKT 3400                        | Principles of Marketing              |   |

### SEED SCIENCE: 16 CR.

|            |                                                |   |
|------------|------------------------------------------------|---|
| AGRON 3170 | Principles of Weed Science                     | 3 |
| AGRON 3380 | Seed Science and Technology                    | 3 |
| AGRON 4210 | Introduction to Plant Breeding                 | 3 |
| ENT 3760   | Fundamentals of Entomology and Pest Management | 3 |
| PLP 4080   | Principles of Plant Path                       | 3 |

One of the following:

|            |                                                    |   |
|------------|----------------------------------------------------|---|
| AGRON 3110 | Professional Internship in Agronomy (seed related) | 1 |
|------------|----------------------------------------------------|---|

|            |                                     |     |
|------------|-------------------------------------|-----|
| AGRON 4910 | Seed Science Internship Experience  | 1-2 |
| HORT 3910  | Horticultural Management Experience | 1   |

**HUMANITIES: 3 CR.**

3 cr. from approved humanities list: <http://www.cals.iastate.edu/student-services/humanities> (<http://www.cals.iastate.edu/student-services/humanities/>)

**SOCIAL SCIENCES: 3 CR.**

3 cr. from approved social sciences list: <http://www.cals.iastate.edu/student-services/social-sciences> (<http://www.cals.iastate.edu/student-services/social-sciences/>)

**ETHICS: 3 CR.**

3 cr. from approved ethics list: <http://www.cals.iastate.edu/student-services/ethics> (<http://www.cals.iastate.edu/student-services/ethics/>)

**REMAINING CREDITS (STUDENT CHOICE).**

Because seed science is a secondary major, the courses taken by the student during the first year will vary, depending on the primary major (see typical program for the primary major).