

## PACKAGING SCIENCE

### Bachelor of Science

The Bachelor of Science degree in Packaging Science prepares students for careers in industries producing and utilizing packages for all types of products. Packaging is an essential part of industrialized economies, protecting, preserving, and helping to market products. The field of packaging is highly competitive and highly innovative, requiring an ever-increasing number of professional positions.

Opportunities for employment include a wide variety of career paths such as manufacturing, marketing, sales, design, purchasing, quality assurance, and customer services. Most career opportunities are in positions requiring technical knowledge combined with marketing and management skills.

The core curriculum assures graduates of having the skills and knowledge required by most entry-level packaging positions. Emphasis area choices or minors allow students to select courses to improve career preparation for specific industry segments, including: Distribution, Transportation and Engineering Technology; Food and Health Care Packaging; Materials; and Package Design and Graphics. Alternatively, any University-approved minor may be completed.

Students changing majors into Packaging Science must:

1. have an overall minimum GPA of 2.0; and
2. have completed four of the following courses with an average GPA of 2.7:  
BIOL 1030, 1040, CH 1010, 1020, MATH 1060, PHYS 1220, 2070, 2080, 2210; or both MATH 1040 and 1070; and
3. have completed PKSC 1020 with a grade of B or higher.

### Combined Bachelor of Science/ Master of Science Degree Program

The Department of Food, Nutrition and Packaging Sciences also offers an accelerated five-year combined bachelor's/master's program that allows students to count up to twelve hours of graduate credit toward both the BS degree in Packaging Science and the MS degree in Packaging Science. Details are available from the Department of Food, Nutrition and Packaging Sciences or at [www.clemson.edu/fnps](http://www.clemson.edu/fnps).

### Freshman Year

#### First Semester

- 3 - BIOL 1030 General Biology I
  - 1 - BIOL 1050 General Biology Lab. I
  - 4 - CH 1010 General Chemistry
  - 4 - MATH 1060 Calculus of One Variable I
  - 1 - PKSC 1010 Packaging Orientation<sup>1</sup>
  - 3 - Social Science Requirement<sup>2</sup>
- 16

#### Second Semester

- 3 - BIOL 1040 General Biology II
- 1 - BIOL 1060 General Biology Lab. II
- 4 - CH 1020 General Chemistry
- 3 - COMM 1500 Intro to Human Comm *or*
- 3 - COMM 2500 Public Speaking
- 3 - ENGL 1030 Composition and Rhetoric
- 2 - PKSC 1020 Intro. to Packaging Science<sup>1</sup>

16

### Sophomore Year

#### First Semester<sup>3</sup>

- 3 - CH 2010 Survey of Organic Chemistry *and*
  - 1 - CH 2020 Survey of Organic Chemistry Lab. *or*
  - 3 - CH 2230 Organic Chemistry *and*
  - 1 - CH 2270 Organic Chemistry Lab.
  - 3 - PHYS 1220 Physics with Calculus I *and*
  - 1 - PHYS 1240 Physics Lab. II *or*
  - 3 - PHYS 2070 General Physics I *and*
  - 1 - PHYS 2090 General Physics I Lab.
  - 4 - PKSC 2020 Packaging Materials and Manuf.<sup>1</sup>
  - 4 - PKSC 2200 Product/Package Design and Prototyping<sup>1</sup>
- 16

#### Second Semester<sup>3</sup>

- 3 - PHYS 2080 General Physics II *and*
  - 1 - PHYS 2100 General Physics II Lab. *or*
  - 3 - PHYS 2210 Physics with Calculus II *and*
  - 1 - PHYS 2230 Physics Lab. II
  - 3 - PKSC 2010 Packaging Perishable Products<sup>1</sup>
  - 3 - PKSC 2040 Container Systems<sup>1</sup>
  - 1 - PKSC 2060 Container Systems Lab.<sup>1</sup>
  - 3 - Arts and Humanities (Literature) Requirement<sup>2</sup>
- 14

### Summer

- 0 - COOP 1010 Cooperative Education<sup>4</sup>

### Junior Year

#### First Semester

- 3 - ENGL 3140 Technical Writing
  - 4 - GC 1030 Graphic Comm. I for Packaging Sci.
  - 3 - PKSC 4010 Packaging Machinery<sup>1</sup>
  - 3 - PKSC 4040 Mechanical Properties of Packages and Principles of Protective Packaging<sup>1,5</sup>
  - 1 - PKSC 4540 Product and Package Eval. Lab.<sup>1,5</sup>
  - 3 - Emphasis Area Requirement<sup>6</sup>
- 17

#### Second Semester

- 3 - PKSC 3200 Package Design Theory<sup>1</sup>
  - 3 - PKSC 3680 Packaging and Society<sup>1</sup>
  - 3 - PKSC 4300 Converting for Flexible Packaging<sup>1</sup>
  - 3 - PKSC 4400 Packaging for Distribution<sup>1</sup>
  - 3 - Emphasis Area Requirement<sup>6</sup>
- 15

### Senior Year

#### First Semester

- 4 - PKSC 4160 Appl. of Polymers in Packaging<sup>1</sup>
  - 4 - PKSC 4640 Food and Health Care Pkg. Syst.<sup>1</sup>
  - 3 - STAT 2300 Statistical Methods I
  - 3 - Emphasis Area Requirement<sup>6</sup>
- 14

#### Second Semester

- 3 - AGRB 2020 Agricultural Economics *or*
  - 3 - ECON 2110 Principles of Microeconomics
  - 1 - PKSC 4030 Packaging Career Preparation<sup>1</sup>
  - 3 - PKSC 4200 Package Design and Development<sup>1</sup>
  - 3 - Arts and Humanities (Non-Lit.) Requirement<sup>2</sup>
  - 6 - Emphasis Area Requirement<sup>6</sup>
- 16

124 Total Semester Hours

<sup>1</sup>Packaging Science majors are required to:

1. Complete PKSC 1020, 2020, 2040, and 2060 with a grade of C or better before being allowed to register for PKSC 4010, 4040, 4160, 4300, 4400, 4540, 4640.
2. Earn a C or better in all PKSC courses in order to graduate

<sup>2</sup>See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement. *Note:* Social Science Requirement must be in an area other than economics or applied economics. A 2000-level or higher modern language course is recommended to satisfy the Arts and Humanities (Non-Literature) Requirement.

<sup>3</sup>Students interested in minors or emphasis areas should take any prerequisites in the sophomore year.

<sup>4</sup>At least one 15-week period of 40 hour weeks of Cooperative Education is required. A six-month period is preferred. Two 10-week summer periods of 40 hour weeks with the same company is an option.

<sup>5</sup>PKSC 4040 and 4540 must be taken concurrently.

<sup>6</sup>Completion of any emphasis area or university approved minor is required. Emphasis areas consist of 15 credit hours selected from one of the following areas (additional emphasis area courses may be approved by emphasis area coordinator):

(1) Distribution, Transportation and Engineering Technology—15 Credits selected from AGM 2050, 4060, 4600, CE 2550, 3110, 4100, 4110, 4120, CRP 4120, ENGR 1200, 1300, 2090, ME 4170, MGT 3050, 3170, 4230, 4240

(2) Food and Health Care Packaging—15 Credits selected from BCHM 3050, BIOE 3020, 3200, 4010, BIOL 2220, FDSC 2140, 4010, 4020, 4040, HLTH 2400, 4010, MGT 2010, MICR 3050, 4070, MKT 3010, NUTR 4010, PKSC 4990

(3) Package Design and Graphics—15 Credits selected from GC 3460, 4060, 4070, 4400, MKT 3010, 3020, 4310, PKSC 4220, 4990

(4) Materials—15 Credits selected from ACCT 2010, AGM 2050, BIOE 2010, 3020, CHE 3190, ECON 3140, 3190, ENR 3120, 4290, EES 2010, 2020, ENSP 2000, 4000, 4720, ETOX 4210, FOR 4410, 4420, GC 3460, 4060, 4070, 4510, LAW 3220, MGT 2010, MKT 3010, MSE 2100, 2410, 2500, 3190, 3420, PKSC 4210, 4220, 4990

## PLANT AND ENVIRONMENTAL SCIENCES

### Bachelor of Science

The BS degree program in Plant and Environmental Sciences is a multidisciplinary program that educates students with expertise in soils, crop sciences, and applied agricultural biotechnology. It offers students a rigorous, science-based degree with educational opportunities related to management of agricultural commodities and natural resources, as well as soil and water resources. Students can tailor the program to fit their professional and academic goals by selecting one of three concentrations.

The Agricultural Biotechnology Concentration integrates conventional disciplines with molecular advances in plants, pathogens, and biosystem interactions and responds to the educational void between the rapid adoption of biotechnology products into agricultural production and the intermediate- and end-users, farmers, and consumers. Graduates in this concentration will be competitive as scientists in emerging agricultural biotechnology industries, as educators, and as policy makers and officers in regulatory agencies.

Students with a concentration in Agronomy will graduate with comprehensive knowledge to increase farm profits by decreasing the costs of crop production; build soil tilth and fertility through rotations, multiple cropping, and nutrient cycling; protect the environment by minimizing or more efficiently using synthetic agrichemicals; manage crop pests and weeds with integrated, ecologically sound strategies; develop strategies for profitable marketing of agricultural commodities; and create a strong, diversified agriculture that is stable through market and weather fluctuations. Graduates can assume positions as self-