315 Packaging Decision Systems (W)
Fall, Spring, 3(2-2) P: (MT 116 or LBS 117 or MTH 124 or MTH 152H) and completion of a 1 writing requirement R: Open to sophomores or juniors or seniors in the School of Packaging. SA: PKG 415
Application of computer models to analyze and solve problems in the management, specification, production, and testing of packaging systems.

322 Packaging with Paper and Paperboard
Fall, Spring, 4(3-2) P: (PKG 221 or concurrently) and PKG 101 and (MT 124 or MT 132 or LBS 118 or MTH 152H) and completion of a 1 writing requirement R: Open to sophomores or seniors or graduate students in the School of Packaging. SA: PKG 325
Physical and chemical properties, manufacture, conversion, and use of wood, paper, paperboard, and related components in packaging. Design, use, and evaluation of packages.

323 Packaging with Plastics
Fall, Spring, 4(3-2) P: (PKG 221 or concurrently) and PKG 101 and (MT 124 or MT 132 or LBS 118 or MTH 152H) and completion of a 1 writing requirement R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging. SA: PKG 320
Physical and chemical properties of plastics and their relationship to selection, design, manufacture, performance, and evaluation of packages.

330 Package Printing
Fall, Spring, 3(3-0) P: PKG 221 R: Open only to sophomores or juniors or senior students in the School of Packaging.
Methods of printing packages including copy preparation, design, electromagnetic imaging, aesthetics, camera use, and effects of package materials. Production of printed packages including quality control, economics, and environmental considerations.

370 Packaging and the Environment
Spring, 3(3-0) P: Completion of a 1 writing requirement. RB: CEM 141 or CEM 151 or LBS 164 R: Not open to freshmen or sophomores. Effects of packaging on environmental quality. Solid waste. Air and water quality. Laws, economics and energy. Resource use and conservation.

410 Distribution Packaging Dynamics
Fall, Spring, 3(3-0) P: PKG 322 and PKG 323 R: Open only to sophomores or juniors or seniors or graduate students in the School of Packaging. SA: PKG 310
Identification and measurement of hazards in physical distribution. Methods of protection against climate, shock, vibration, and compression.

432 Packaging Processes
Fall, Spring, 4(3-2) P: (PKG 322 and PKG 323) and (PHY 232 or PHY 232B or PHY 232C or PHY 232D or PHY 184 or PHY 182B or PHY 184A or PHY 184B or PHY 249H) R: Open only to sophomores or juniors or seniors or graduate students in the School of Packaging.
Integrated study of packaging and production operations, quality control, and organization and control of machines. Interrelationship of products, packaging, machinery layout and efficiency, and quality issues.

444 Radio Frequency Identification (RFID) for Packaging
Fall, Spring, 3(2-2) P: PKG 322 and PKG 323 or approval of school Automatic identification tags, codes, and hardware and software for radio frequency identification (RFID). Business applications. Effect of products, materials, packaging, warehousing, supply chain, and quality on radio frequency equipment and readability.

445 Robotics in Packaging
Fall, Spring, 3(2-2) P: MTH 124 or MTH 132 or LB 118 or MTH 152H; SA: PKG 325
Robotic systems. Configurations, components, drive mechanisms, control and feedback, and safety. Line inspection, vision systems, guided vehicle, and storage retrieval systems.

450 Automotive and Industrial Packaging
Fall, Spring, 3(2-2) P: MTH 124 or MTH 132 or LB 118 or MTH 152H; SA: PKG 325
Returnable and expendable packaging for part shipments to assembly plants, cost justification, service parts packaging, logistical systems, and material handling.

452 Medical Packaging
Fall, Spring, 4(3-2) P: PKG 322 or PKG 323 Special requirements for packaging pharmaceuticals and medical devices. Evaluation of packaging systems and packaging procedures.

455 Food Packaging
Spring, 3(3-1) P: PKG 322 and PKG 323 R: Open only to sophomores or juniors or seniors or graduate students in the Packaging major.
Food package systems related to specific products and processes. Product composition: problems and packaging solutions, shelf life considerations, and packaging lines.

460 Distribution Packaging and Performance Testing
Fall, Spring, 3(2-2) P: PKG 410 R: Open only to sophomores or juniors or seniors or graduate students in the School of Packaging.
Interrelationships between packaging and distribution systems. Transportation, material handling, warehousing, logistics and management systems. Performance testing and industry practices. Package container design and testing.

475 Packaging Economics
Fall, Spring, 3(3-0) R: EC 201 or EC 202 Economic issues in packaging as they relate to policies of the firm and of government. Relationships between economic policy and societal issues.

477 Hazardous Materials Packaging
Spring, 3(3-0) R: PKG 322

480 Packaging Laws and Regulations
Spring, 3(3-0) R: PKG 322

490 Directed Studies in Packaging Problems
Fall, Spring, Summer, 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: PKG 322 and PKG 323 R: Open only to sophomores or juniors or seniors or graduate students in the School of Packaging. Approval of department; application required.
Development of solutions to specific packaging problems. Supervised individual study.

491 Special Topics
Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. Selected topics of current interest.

492 Senior Seminar
Fall, Spring, 1(1-0) R: Open only to seniors in the Packaging major.
Seminar on current packaging issues, business organization and operations, and accepted practices in a corporate environment.

493 Professional Internship in Packaging
Fall, Spring, Summer, 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CMP 493, CSS 493, EEP 493, ESA 493, FIM 493, FSC 493, FW 493, HRT 493, PKG 493, PLP 493, and PRR 493. P: PKG 322 and PKG 323 and PKG 315 R: Approval of department; application required.
Supervised professional experience in the field of packaging offered through corporations and other businesses throughout the U.S.

801 Packaging Materials
Fall, 4(4-0) R: Approval of department.
Physical and chemical properties of packaging materials; design, manufacture, performance and evaluation of packages.
Packaging—PKG

803  Packaging Distribution and Dynamics
Spring, 2(2-0) R: Approval of department.
SA: PKG 802
Transportation environment, distribution packaging design and testing.

804  Packaging Processes
Spring, 2(2-0) R: Approval of department.
SA: PKG 802
Integrated study of packaging and production operations, quality control, organization and control of machines. Interrelationship of products, packaging, machinery layout and efficiency, and quality issues.

805  Advanced Packaging Dynamics
Spring, 3(2-2) RB: PKG 410

814  Packaging for Food Safety
Summer, 3 credits. Interdepartmental with Veterinary Medicine. Administered by Veterinary Medicine. RB: Enrollment in graduate program in related field; R: Open to masters students in the Food Safety major and open to graduate students in the Packaging major or approval of college. Current issues in packaging and food safety.

815  Permeability and Shelf Life
Spring, 3(2-2) RB: MTH 124Q and MTH 132 and PKG 322 and PKG 323
Relationship between the storage life of packaged food and pharmaceutical products and the gas, moisture, and organic vapor permeability of packages in various environments.

817  Instruments for Analysis of Packaging Materials
Fall of even years. 4(3-2) RB: PKG 322 and PKG 323

827  Polymeric Packaging Materials
Fall, 3(3-0) RB: PKG 323 or PKG 801 SA: PKG 825
Physical and chemical properties of polymeric materials and structures used in packaging. Relationship of properties to performance.

828  Processing and Applications of Packaging Plastics
Spring, 3(3-0)

829  Packaging Plastics Laboratory
Fall, 1(0-2) Not open to students with credit in PKG 825.
Structure versus property relationships and plastics processing.

875  Stability and Recyclability of Packaging Materials
Fall of odd years. 3(3-0) RB: PKG 322 and PKG 323
Interactions between packaging materials and environments: corrosion, degradation, stabilization, and recycling. Impacts of packaging disposal.

888  Master's Project

890  Independent Study in Packaging
Fall, Spring, Summer, 1 to 3 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to graduate students in the School of Packaging. Approval of department; application required.

Special investigations of unique packaging problems.

899  Master's Thesis Research
Fall, Spring, Summer, 1 to 8 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to master's students in the Packaging major.
Master's thesis research.

985  Analytical Solutions to Packaging Design
Spring of even years, 3(3-0) RB: PKG 801
R: Open only to graduate students in the College of Agriculture and Natural Resources or College of Engineering or College of Natural Science. Approval of department; application required.
Analytical and quantitative techniques for packaging design and evaluation.

990  Independent Study in Packaging
Fall, Spring, Summer, 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to Ph.D. students in the School of Packaging. Approval of department; application required.
Special investigations of unique packaging problems.

992  Packaging Seminar
Fall, 1(2-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to graduate students in the School of Packaging.
Presentations of detailed studies on specialized aspects of packaging.

999  Doctoral Dissertation Research
Fall, Spring, Summer, 1 to 24 credits. A student may earn a maximum of 50 credits in all enrollments for this course. R: Open only to doctoral students in the School of Packaging.
Doctoral dissertation research.