

**PKG 3001**  
**PRINCIPLES OF PACKAGING**

**1. Catalog Description:** 3 *credits*. This course focuses on the materials, uses, functions and production processes of packaging. Topics include an industry overview and related applications as well as the historical, societal and technological drivers of packaging and how end-users decide on the product/package combination they use for their product and the impact these choices make on the product's market success.

**2. Pre-requisites and Co-requisites:** None

**3. Course Objectives:**

Students, upon completing this course, will be able to:

- a. Explain the critical role of packaging systems.
- b. Analyze the packaging industry, current and future trends.
- c. Explain packaging materials in use.
- d. Describe converting operations for packaging materials.
- e. Form an opinion on the environmental issues related to packaging and society.
- f. Understand packaging laws and regulations.

**4. Instructor:** Dr. William Pelletier

- a. Office location: 101 Frazier Rogers Hall
- b. Telephone: Work: 352-392-1864 #101
- c. Email address: [wpelletier@ufl.edu](mailto:wpelletier@ufl.edu)
- d. Office hours: MWF 4 (10:25 A.M. – 11:30 A.M.) and on appointment

**5. Teaching Assistant:** TBD

**6. Meeting Times:** MWF 3 (9:35 A.M. – 10:25 A.M.)

**7. Meeting Location:** 129 Frazier Rogers Hall

**8. Textbook (optional):**

Soroka, Walter. 2014. *Fundamentals of Packaging Technology* 5<sup>th</sup> Edition. Institute of Packaging Professionals, Naperville, IL, U.S.A. 748 p.

**9. Course Outline:**

**1 - Packaging Functions**

Contain  
Protect/Preserve  
Transport  
Inform/Sell

**2 - Graphic Design**

Demographics and Psychographics  
The Retail Environment  
Fundamental Messages  
Graphic Design Basics  
Package Design and Marketing Studies

**3 - Package Printing and Decorating**

Color  
Artwork  
Printing  
Other Package Decoration Techniques  
Labeling

**4 - Paper and Paperboard**

Source and Preparation of Fiber  
Representative Paper-Making Machines  
Paper Characterization and Types  
Paperboard Grades

**5 - Paperboard Cartons**

Paperboard Package Classifications  
Folding Carton Design  
Selecting the Correct Paperboard  
The Carton Production Process

**6 - Metal Cans and Containers**

Can-making Steels  
Impact Extrusion  
Can Dimensioning  
Protective Coatings

**7 - Glass Containers**

Glass Types and General Properties  
Commercial Glass Manufacturing

**8 - Polymer Chemistry for the Nonchemist**

Introduction to Plastics  
Packaging Polymers  
Thermal Behavior  
Thermoplastic and Thermoset Polymers

**9 - Shaping Plastics**

Plasticating Extruders  
Profile Extrusion  
Injection Molding  
Extrusion Blow Molding  
Injection Blow Molding  
Thermoforming

**10 - Plastic Applications**

Production, Properties and Applications  
Characterizing Plastic Materials

**11 - Closures**

Container and Closure Dimensioning  
Metal Closures  
Closure Seals  
Plastic Closures  
Injection Molds and Closure Design  
Tamper-Evident, Child-Resistant

**12 - Adhesives**

Surface Treatment  
Solidification  
Common Classes of Packaging Adhesives  
Adhesive Application  
Inspecting Bond Failures

**13 - Flexible Packaging Laminates**

Laminates  
Aluminum Foil  
Vacuum Metallizing  
Laminate Structural and Physical Properties  
Flexible Bags, Pouches and Sachets  
Sealability  
Barrier, Aesthetics and Other Properties  
Laminating Processes

**14 - Corrugated Fiberboard**

Corrugated Board  
Carrier Rules and Regulations  
Corrugated Boxes  
Special Board Treatments

**15 - Applied Packaging**

Types of Packaging  
Bar Codes  
Security Labeling  
Durable Goods Packaging  
Creative Designs

**10. Attendance, Expectations and Behavior:**

Attendance (on time) at lectures is expected from all students, at all times. Cell phones must be silenced prior to the start of class. No food will be permitted in class.

**11. Top Hat**

We will be using the Top Hat ([www.tophat.com](http://www.tophat.com)) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. UF Top Hat information can be found at <https://at.ufl.edu/service-teams/classrooms/classroom-technology/top-hat-response-system/>

You can visit the Top Hat Overview (<https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide>) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if you do not receive this email, you can register by simply visiting our course website: <https://app.tophat.com/e/177343>  
**Note: our Course Join Code is 177343**

Top Hat require a paid subscription, fees for UF students are \$20 for a semester, \$30 for a year and \$55 for 4 years.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email ([support@tophat.com](mailto:support@tophat.com)), the in app support button, or by calling 1-888-663-5491.

## 12. Homework Assignments:

Specific directives will be provided for each assignment, but, in most cases, they will have to be submitted online. Homework assignments and project reports must be turned in before class begins. Assignments submitted late, before 4:00 P.M. on the day they were due, will be marked down by 10% of their total. Assignments submitted late before 4:00 P.M. on the following day will be marked down by 50% of their total (assignments must be emailed if submitted on a Saturday). No assignments will be accepted after 4:00 P.M. on the following day. For online submissions, it is the student's responsibility to ensure that the correct file is uploaded on Canvas. If technical difficulties with Canvas were to occur, students can always email the file to [wpelletier@ufl.edu](mailto:wpelletier@ufl.edu).

## 13. Grading:

Final Comprehensive Examination <sup>1</sup> (12/12 @ 12:30 P.M.)	20%
Two Examinations (10/10 and 11/19 @ 9:35 A.M.)	40%
Homework Assignments & Quizzes (Top Hat)	15%
Project & Presentation	15%
Attendance	10%

*1. The final examination is optional. If you elect not to write the final examination, your grade will be based only on the first two examinations, homework assignments & quizzes, project & presentation, and attendance.*

## 14. Grading Scale: A [90-100%], A- [87-90%], B+ [84-87%], B [80-84%], B- [77-80%], C+ [74-77%], C [70-74%], C- [67-70%], D+ [64-67%], D [60-64%], D- [< 60%]

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

## 15. Make-up Exam Policy: No make-up exams will be given except for valid medical reasons or unless prior arrangements have been made.

## 16. Academic Honesty:

In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

**The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.**

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office. (Source: 2012-2013 Undergraduate Catalog)

It is assumed that all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor. This policy will be vigorously upheld at all times in this course.

### **17. Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **18. Campus Helping Resources:**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

*University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,*

[www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

*Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

### **19. Services for Students with Disabilities:**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)