MSU School of Packaging
Leadership for Global Challenges
The First Packaging Program

Founded in 1952, MSU School of Packaging is the first packaging program in the history of high education.
# Proven Record of Success

<table>
<thead>
<tr>
<th>#1</th>
<th>40%</th>
<th>10,000</th>
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<tbody>
<tr>
<td>Ranked #1 in packaging program rankings.</td>
<td>~40% of packaging graduates come from MSU each year.</td>
<td>Conferred over 10,000 degrees since its beginning.</td>
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- **18**
  - Alumni span industries and global Fortune 500 companies.
  - School of Packaging faculty hold more than 18 patents.

- **600**
  - Approximately 600 undergraduate and graduate students today.

- **$737K**
  - More than $737,000 in corporate-sponsored research.
Comprehensive Curriculum

- Calculus
- Physics
- Chemistry
- Statistics
- Plastics
- Paper
- Metal/Glass
- Distribution
- Supply Chain
- Design
- Software Tools
- Lab Work
- Consumer Design
- Automotive
- Medical
- Food
- Sustainability (LCA)
Global Impact

We teach the teachers.
Our Ph.D. graduates teach at universities around the world.
Continued Investment in the Future
Recently Completed: $10M Building Renovation
Packaging 2.0

Expand enrollment to 1000+

Expansion of world-class labs

Competitive faculty ratio

Vision: undisputed global packaging education leadership

...and doing this on the strength of our inclusive, collaborative culture
Opportunities for Corporate Partnerships

- Corporate Sponsored Research
- Talent Pipeline
- Equipment Gifts
- Technology Licensing
- Cash Gifts
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Dr. Joodaky’s research focuses on shock, vibration and packaging design optimization.
Dr. Bix’s research focuses on quantifying the interface between people and packaging (perceptually, cognitively and physically) with the ultimate goal of improving health outcomes.
Dr. Yang’s research is in the areas of cellulosic packaging.

Chemical processing of wood

Cellulose nanofiber from cow manure

Porous paper humidity sensor

Functionalization of Cellulose
Dr. Rabnawaz’s research focuses on the development of new biodegradable polymers from renewable resources, high-barrier materials, sustainable adhesives, sorbents for PFAS treatment, smart coatings, and plastic recycling.

- **Multi-layer recyclable plastic**
- **Recycle mixed plastics**
- **PET recycling**
- **Thermally sealable paper bag** (replace plastic bags)
- **Non-plastic paper coatings**
Dr. Almenar's research focuses on developing packaging materials and technologies with an emphasis on active packaging for the delivery of high-quality and safe food. Most of this novel packaging is made from renewable feedstocks, including by-products from processed food.

Studies on the use of different agricultural wastes for food packaging applications

Study on e-commerce food and beverage packaging
New mathematical models to optimize logistics of reusable packaging systems

Packaging postponement optimization analysis

Packaging’s role in reducing food waste
Develop packaging problem solving solutions using ML web scraping for packaging issues. Relate package key words in online customer reviews to shipping damage.

Use ML and AI techniques for box compression and other packaging design estimations.

Structural design optimization using FEM tools.
Dr. Rubino’s research focuses on the mass transfer of vapors, gases, and additives in polymers and packaging systems, and the development of packaging systems based on active surfaces through the application of functional nanoparticles.
Plant-based (corn, sugar beets) polymers with properties similar to PP. Nanoscale crystals from wood waste (food grade approved), that improve barrier properties. Commercially available now through MSU IP office.

![Unpackaged vs Packaged](image)

Unpackaged (stored at 23°C for 2 d) vs Packaged in PLA/CNC film, (stored at 23°C for 2 d)

Insulating packaging films in place of foam or laminated layers. Recyclable mono polymer from low melt PLA. Example: food wrapper application.
Dr. Auras’ research focuses on mass transfer in polymers, biodegradable and compostable polymers, life cycle assessment, packaging waste, and sustainable packaging systems.
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