WELCOME

James L Winkle College of Pharmacy
Karen Henry, Associate Director of Graduate Programs

&

KP. Ananth (Ananthapadmanabhan),
Academic Director of Cosmetic Science Program
James L Winkle College of Pharmacy: A Rich History

- Founded in 1850; the 5th oldest pharmacy school in the USA
- First college of pharmacy established west of the Alleghenies
- Operated as a private college until July 1954 when it joined the University of Cincinnati
- Notable history:
  - Benadryl® (diphenhydramine) – the first antihistamine
  - At forefront of the clinical pharmacy movement (1960s & 1970s)
  - Cosmetic science – the only PhD program in the US
The Changing/Emerging Role of the Pharmaceutical Scientist

- Don't mix up **pharmacists** with **pharmaceutical scientists**, even though the names are similar. Although they both work with drugs, the scientists work at pharmaceutical companies developing new drugs, and the pharmacists deal with existing drugs, educating consumers, and handing out those proven pills. With the proper scribbled signature, of course 😊
MS & PHD

Thesis-based Programs

Biomembrane Science

Experimental Therapeutics

Health Outcomes
Fields that pharmaceutical scientists work in include:

- Analysis and pharmaceutical quality,
- Biotechnology,
- Clinical pharmacology and translational research,
- Drug design and discovery,
- Formulation design and development and pharmacoengineering,
- Pharmacokinetics, pharmacodynamics and drug metabolism, physical pharmacy and biopharmaceutics, regulatory sciences, and social and behavioral pharmacy, pharmacoepidemiology, and pharmaceutical outcomes.
Admission Requirements

- Matriculation requires:
  - An earned Bachelor of Science
  - Undergraduate course work in organic chemistry and calculus
  - GPA > 3.0
  - Letters of recommendation and CV or resume
  - For MS degree path a GRE > 290/3.0 is required.
  - English as a first language must pass the TOEFL with a score of >90 (IBT or Equivalent.)
Online Training in Cosmetic Science

“MS in Cosmetic Science from University of Cincinnati unlocked a new window of learning when I came back to the work-force after nine years. People were astonished with the cutting edge information that I had, techniques that I was using, and resources that I could validate. Confidence acquired by the support from my teachers and the extensive curriculum in school, allowed me to acquire a better position in a multi-national company. The training and challenges of this course keep me ahead in my professional career. I am achieving a long cherished dream – my favorite field, from an acclaimed university.” Vandana Srivastava
History of Cosmetic Science at UC

- UC College of Pharmacy was the first university to offer graduate training in Cosmetic Science starting in 1972.
- Our graduates are found throughout the Personal Care industry.
- In 2006 we became the first university to offer online Graduate training in Cosmetic Science.
- All of our online graduates are working in the Personal Care Industry.
What is Cosmetic Science?

- Cosmetic science is not “Cosmetology”
- Cosmetic science is multidisciplinary
  - Biology, biophysics, materials science, formulation science, clinical studies, imaging and predictive modeling, microbiome, preservation, green chemicals, sustainability
  - Health, hygiene and beauty
    - Infants to very elderly
- Uniqueness of the program at UC
  - Faculty with significant academic and industrial experience
    - All aspects under one program
# Cosmetic Science

## Course Outline

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<th>Color Cosmetics</th>
<th>Cosmetic Formulations</th>
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<td><strong>Cosmetic Microbiology</strong></td>
<td><strong>Cosmetic Formulation II</strong></td>
<td><strong>Advanced Pharmaceutics I</strong></td>
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<td><strong>Hair Care Science</strong></td>
<td><strong>Biostatistics</strong></td>
<td><strong>Clinical Instrument testing of Skin</strong></td>
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<td><strong>OTC Skin Product</strong></td>
<td><strong>Molecular Biology of Skin</strong></td>
<td><strong>Oral Care Products</strong></td>
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New BS-MS Dual Degree Program:

BS in Chemistry with MS in Cosmetic Science
in 5 Years (4 + 1); Includes Co-Ops

This program will offer in-depth know-how in applied sciences relevant to the personal care and beauty industry

Personal Care and Beauty Science and Technology

Areas of Focus
Skin Care, Hair Care
Oral Care, Deodorants
Color Cosmetics,
Sensory science
Personal Hygiene
Moisturization, Anti-Aging
Baby Care, Elderly skin care
Sun Protection

Areas of Focus
Formulation science
Global Regulatory, Safety,
Stability, Sustainability
Cosmetic Preservation
Toxicity, Environmental aspects
Clinical Testing and Claims
Sensory Science
Naturals / Green Chemistry

For more info:
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Dual degree program jointly between McMicken College of A & S and James L Winkle College of Pharmacy, Univ. of /Cincinnati
Master of Drug Development

Drug Development Specialization (MSDD)

and

Graduate Certificates

Global Regulatory Affairs &

Clinical Trials Design and Research
THE MSDD VISION

• A two-year degree program with first in class curriculum in Global Pharmaceutical Development (drugs/biologicals, drug products and devices)

• Tailored to meet the aspirations of Fully-Employed Professionals

• A unique collaboration between academia, industry and government
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<tr>
<td>Global Regulatory Affairs (12 Credits)</td>
<td>Clinical Trials Design and Research (12 Credits)</td>
<td>For the MS Degree (30 Credits)</td>
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<tr>
<td>1. Regulatory and Strategic issues</td>
<td>1. Phase I/II Clinical Trials</td>
<td>Seminars (2 Credits)</td>
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<tr>
<td>2. Discovery of drugs and biologicals</td>
<td>2. Statistical Principles in Clinical Research</td>
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<tr>
<td>3. Pre-Clinical /IND</td>
<td>3. Phase III/IV Clinical Trials</td>
<td>Capstone (4 Credits)</td>
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Background of MSDD Applicants/Admission Criteria

- Post-Baccalaureate degrees in
  - Pharmacy, Nursing, Medicine and other biomedical fields
- Individuals with degrees in other areas or BS in biological sciences with relevant experience
- Numerous post-doctoral fellows – broadening industry appeal
- Overall current GPA > 3.0
- GRE Scores > 290 in Verbal + Quantitative and > 3.0 in Analytical
- More emphasis on work/life experience
ACHIEVEMENTS THUS FAR

• Approximately 80 students have graduated thus far and over 150 students have taken one or more classes!
  • Almost equal number of M and F
  • A large number of underrepresented minority students
  • Natives from literally each continent
  • Adult learners
  • A few publications and scientific awards!

• Graduates have reaped tangible benefits in their careers
  Including joining COP as faculty!
• Collaborated with other academic programs – MS in Clinical Research (CTSA)
Capstone Projects