



UNIVERSITY of MARYLAND
SCHOOL OF PHARMACY

Introduction to Pharmacy Pt. 1



www.pharmacy.umaryland.edu



Agenda

- 2 p.m. Role of a Pharmacist; Careers in Pharmacy
 - Dr. Cherokee Layson-Wolf, Assoc. Dean
- 2:20 p.m. Panelists
 - Dr. Tuan Huynh, Advanced Practice Pharmacist
 - Dr. Sandeep Devabhakthuni, Cardiology
 - Dr. Andy Coop, Drugs with abuse liability
 - Dr. Richard Dalby, Approaches to Drug Delivery
- 3 p.m. Overview of Planning a Professional Degree
 - Ms. JuliAna Brammer, Dir., PharmD Admissions
 Q&A

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What state are you joining us from? (Entire name)

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Medication Experts

Serve as a **drug scientist, medication expert, patient counselor** and critical healthcare resource

- **Educate** patients
- **Counsel** patient and healthcare providers on **optimal therapy options**
- Ensuring the **best patient outcomes**
- **Trusted and highly accessible**



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**Why does a career in
pharmacy interest you?**

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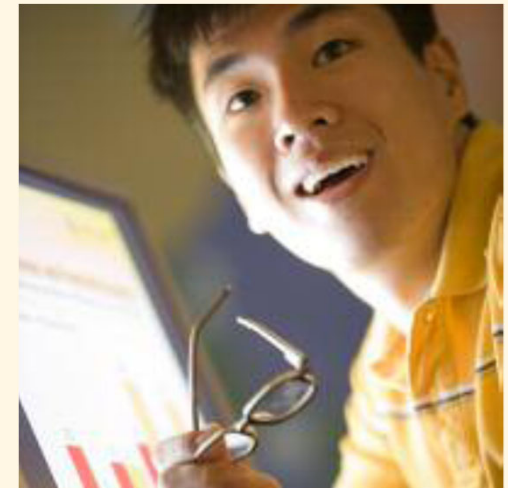
Did you know?

- More than 258 million doses of COVID-19 vaccine have been administered by US Pharmacists.
(<https://www.cdc.gov/vaccines/covid-19/retail-pharmacy-program/index.html>)
- Messenger RNA (mRNA) vaccines use new technology pioneered at US pharmaceutical companies which employ PharmDs in numerous positions.
- The global pharmaceutical market is valued at about 1.4 trillion U.S. dollars and is led by the US.
(<https://www.statista.com/statistics/263102/pharmaceutical-market-worldwide-revenue-since-2001/>)
- Pharmacists are the most accessible and frequently visited members of the healthcare team.
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3058447/>)
- Healthcare accounts for about 20% of the US Economy.
(<https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical>)



Pharmacy may be a good career for you if...

- You are good at math and science
- You enjoy helping people
- Multitasking is appealing
 - Pharmacy field is evolving rapidly
- You want a job with flexible hours



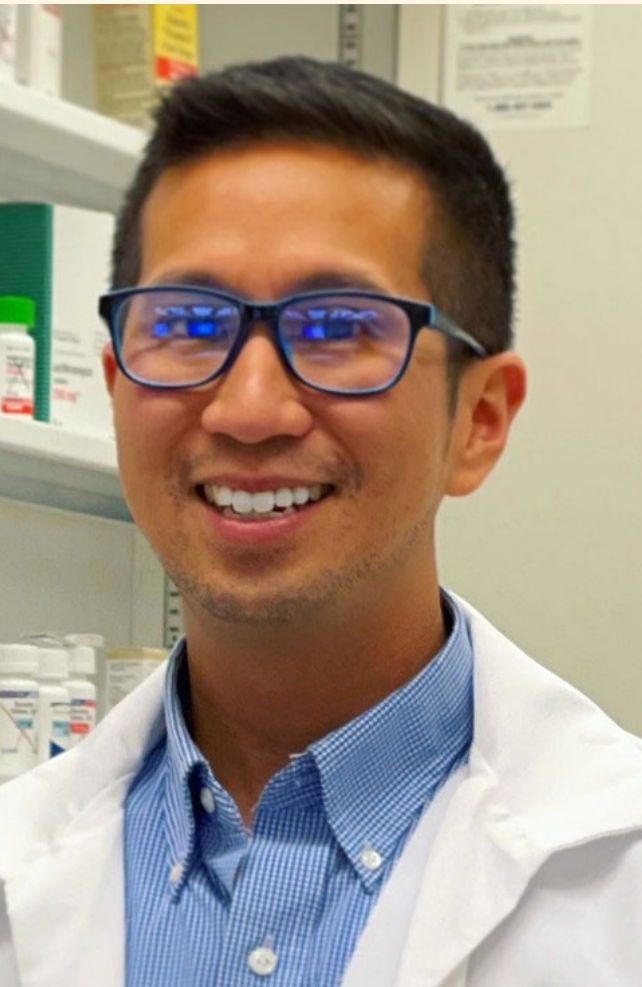
Career Paths



- Community
- Hospital
- Hospice
- Oncology
- Pediatric
- Psychiatry
- Geriatric
- Research
- Industry
- Regulatory Science
- Nutrition
- Poison Control
- Veterinary
- Academia
- FDA

Career Highlight

Tuan Huynh, PharmD



Advanced Practice Pharmacist, UMSOP

- Optimize patient care by providing:
 - Prospective medication reviews
 - Medication Therapy Management (MTM) services
 - Immunization
 - Clinics and Educational Health Fairs
 - Counseling
 - Physician detailing and consultation
- Specialties:
 - Community Pharmacy Practice
 - Medication Therapy Management (OUTCOMES and Mirixa trained)
 - APhA Immunization Certified
 - General Internal Medicine and Therapeutics

Career Highlight

Sandeep Devabhakthuni, PharmD, BCPS



- Assoc. Professor, Pharmacy Practice
- Clinical pharmacy specialist in the Cardiac Intensive Care Unit at UMMC
- Co-Founder: Applied Therapeutics, Research, and Innovation at UMSOP (ATRIUM)
- Director of Post-Graduate Training
- Maryland Society of Health System Pharmacists, Past President
- Preceptor of the year, Faculty of the Year, Teacher of the year

Career Highlight

Andy Coop, PhD



- NIH-funded research
 - Design and synthesis of new opioid analgesics with reduced tolerance, development of novel antidepressants
- Assoc. Dean, Academic Affairs at SOP
- Previous Chair, Pharmaceutical Sciences
- Biological Coordinator, Drug Evaluation Committee of the College on Problems of Drug Dependence
- Testified to the US Senate on approaches to treat pain during the opioid crisis

Career Highlight

Richard Dalby, PhD



- Fellow of the American Association of Pharmaceutical Scientists (AAPS)
- Member of the Royal Pharmaceutical Society of Great Britain
- Research interests:
 - formulation and evaluation of pressurized metered dose inhaler, dry powder, nebulizer, and nasal spray products
 - the development and evaluation of inhalation products
 - laboratory testing and patient evaluation of novel pulmonary and nasal delivery devices
 - design of patient education aids

What makes Maryland stand out?

University of Maryland, Baltimore

The School is one of seven professional schools and a graduate school located at the University of Maryland, a thriving center for life sciences research and community service:

- School of Medicine
- School of Law
- School of Dentistry
- School of Pharmacy
- School of Nursing
- School of Social Work

The University of Maryland, Baltimore shares a campus with:

- University of MD Medical Center
- Baltimore VA Medical Hospital



PharmD Program Curriculum

Year 1

- Coursework in biomedical science, pharmaceutical chemistry, principles of drug action, and immunology, as well as professionalism, ethics, and general patient management.

Year 2

- Therapeutic decision making in each major system/disease state, as well as infectious disease therapeutics, pharmacokinetics, health policy, and weekly clinical skills training.

Year 3

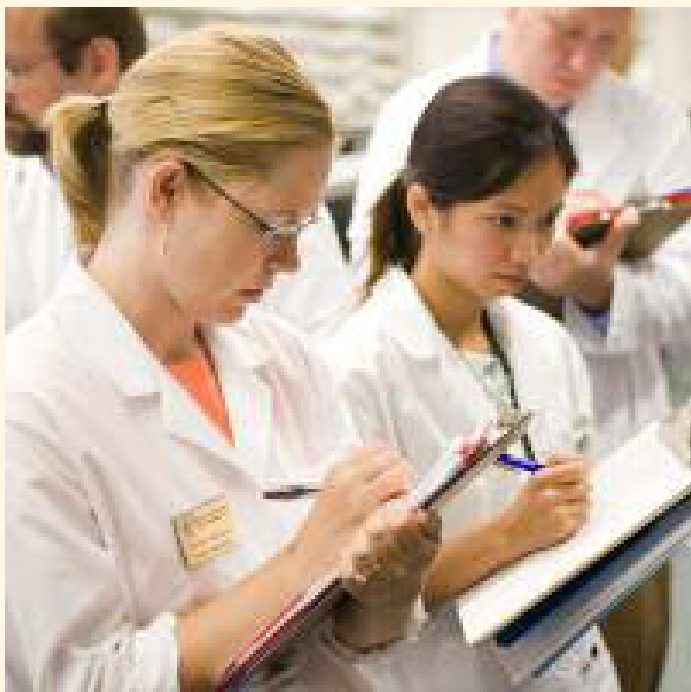
- Pharmacotherapy of multiple disease states, pharmacy practice management, pharmaceuticals, public health pharmacy, and pharmacy law.
- Student pharmacists explore areas of interest through a wide variety of electives, pathways, and dual degrees.

Year 4

- Student pharmacists are off-campus during the entire fourth year for advanced pharmacy practice experiences.

Opportunities

Electives and Rotations



Electives

- IPE Medication Management in **Mental Health**
- Current Concepts and Controversies in **Cardiology**
- Introduction to the **Poison Center**
- Effective Leadership and **Advocacy**
- **Pharmapreneurship** seminar
- Advanced **Pharmacogenomics**
- **Cannabis Pharmacology** and Therapeutics
- IPE **Culinary Health** and Medicine
- Pharmacotherapy of **Solid Organ Transplantation**

Rotations

- Food and Drug Administration
- Centers for Medicare and Medicaid Services
- Community retail and independent pharmacies
- National Institute of Health
- University of Maryland Medical System
- The Johns Hopkins Hospital
- Public Health Service/Indian Health Service
- International experiences

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What stage are you in your academic career?

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Admissions

- Prerequisites – 65 credits
 - Can take at any accredited 2- or 4-year institution
 - Do not need Bachelors or Associates degree
- PharmCAS Application, deadline **April 3, 2023**
- PCAT – Professional Pharmacy Exam
- Deadlines posted on website
- AP Credits count towards prerequisite courses

Sample Pre-Pharm Coursework Plan

YEAR 1		YEAR 2	
FALL	SPRING	FALL	SPRING
Gen Chemistry I (4)	Gen Chemistry II (4)	Organic Chemistry I (4)	Organic Chemistry II (4)
Statistics (3)	Microbiology (4)	Human Anatomy and Physiology I (3)	Human Anatomy and Physiology II (3)
English Composition (3)	Calculus (3)	Physics I (4)	Biology II (4)
Biology (4)	Public Speaking (3)	Humanities (3)	Microeconomics (3)
Humanities (3)	Humanities (3)		Humanities (3)
	<u>PCAT</u> <i>July - Nov</i> Attend Open House	<u>PCAT</u> <i>Jan - April</i>	<u>Deadline to apply</u> <i>April</i>

Pre-Pharm Preparation

High School

- Take Chemistry and Biology courses
 - AP credits count towards prerequisites
- Talk to family and friends about health care/pharmacy careers

Year 1 College

Fall

- Begin pre-pharmacy courses
- Shadow a pharmacist/volunteer or work in pharmacy
- Participate in clubs and extracurricular activities
- Meet with undergraduate advisor to plan coursework

Spring/Summer

- Attend a UMSOP Open House
- Prepare for PCAT/take PCAT
- Meet with Admissions at UMSOP
- Notify references
- Personal Statement

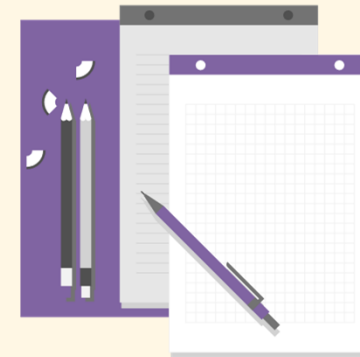
Year 2 College

Fall

- Continue to take pre-pharmacy coursework
- Consider PCAT
 - April PCAT last acceptable exam before the deadline
- Apply through PharmCAS
- Complete Supplemental Application

Spring

- Admissions interviews conducted
- Complete remainder of coursework
- Apply for FAFSA





- Doctor of Pharmacy (PharmD)
- Doctor of Philosophy (PhD)
- Masters of Science (MS)

JOINT PROGRAMS

- **PharmD/MBA** – Business
- **PharmD/PhD** – Research
- **PharmD/JD** – Law
- **PharmD/MPH** – Public Health
- **PharmD/MS** – Palliative Care, Medical Cannabis, PHSR, PSC, Pharmacometrics, Regulatory Science



Financial Aid



- Tuition per year:
 - Maryland Resident: \$28,352
 - Non-Maryland Resident: \$45,836
- Most students receive financial aid
 - Combination of loans, grants, scholarships
- FAFSA Application
 - Priority deadline March
 - Scholarships applied
 - Financial packages available in April

Why PharmD @ UMB?

- Over 500 Rotations, electives
- Comprehensive program
- Interdisciplinary Opportunities
- Student Organizations
- Diverse student population
- Dual Degrees/Pathways
- Location
 - numerous hospitals, health facilities
 - NIH, FDA, US Public Health Service





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JuliAna Brammer

Director of Admissions

jbrammer@rx.umaryland.edu

Patrice Sharp

Admissions Coordinator

patrice.sharp@rx.umaryland.edu

pharmdassist@umaryland.edu

410-706-7653

www.pharmacy.umaryland.edu

