

# United States of America Pharmacy Education



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**American Pharmacists Association,  
Academy of Student Pharmacists  
(APhA-ASP)**



# Pharmacy Schools in the United States

- 103 schools currently **“fully accredited”**
  - (Accreditation process)
- 22+ are **“candidate”** or **“pre-candidate”**





# Accreditation Process

- Graduating from an accredited school is necessary for Pharmacy licensure
- Accreditation Counsel for Pharmacy Education (ACPE)
- <http://www.acpe-accredit.org>



# Pharmacy Licensure Requirements

- Graduation Prior to 2004
  - Bachelors of Science (BSc) in Pharmacy
  - **5** year minimum
- All Pharmacists after 2004
  - Doctor of Pharmacy (PharmD)
  - **6** year minimum: **4** professional years  
professional years
    - Accelerated PharmD Programs exist with 3 professional years with a year-round program



# Pharmacy Licensure Requirements (cont.)



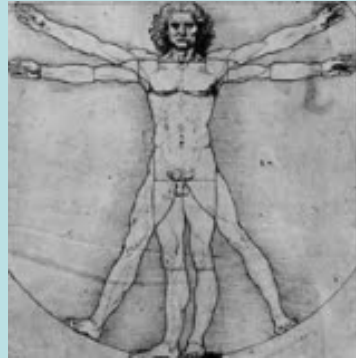
- Education Verification
  - ACPE-Accredited PharmD Degree
  - OR, Foreign Pharmacy Graduate Examination Committee (FPGEC) Certification
- Standardized Pharmacy Exam
  - The North American Pharmacist Licensure Examination (NAPLEX)
- Law Exam
  - The Multistate Pharmacy Jurisprudence Examination (MPJE)
- Compounding Exam (Georgia, New York, etc.)
- Internship hours (at least 1,500 hours, varying depending on licensure location)



# Licensure Requirements for International Graduates

- Foreign Pharmacy Graduate Examination Committee (FPGECE) Certification
  1. Certification requires a program of at least five years.
  2. Must pass the Foreign Pharmacy Graduate Equivalency Examination (FPGEE)
  3. Test of English as a Foreign Language - Internet Based Test (TOEFL iBT)
  4. 1,500 “Internship” hours
  5. Law requirements vary by state (Department of Consumer Protection)

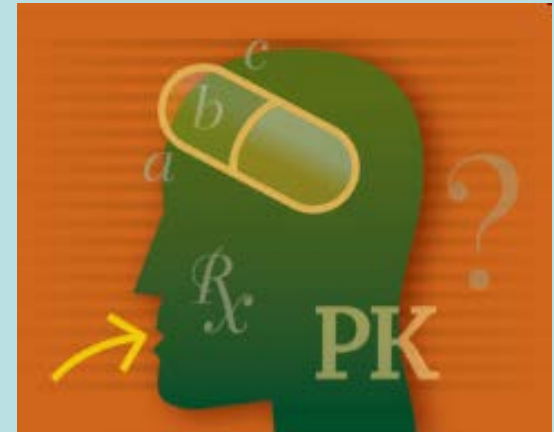
# PharmD Curriculum



- Average amount of credits per semester / quarter: ~18
- General Science courses required throughout professional education
  - E.g. cell biology, bio-organic chemistry, anatomy and physiology, medicinal chemistry
- Pharmacy courses taught based on disease state
  - e.g. mental health, cardiovascular, infectious disease, oncology
  - Example: Dermatology module, recently incorporated into UConn's curriculum.
  - Pros: Learning about treatment regimens based on their mechanisms of action and what conditions they treat; This incorporates more hands-on critical thinking instead of simply learning about what each drug does.

# PharmD Curriculum, Continued

- Pharmaceutics course
  - Manufacturing, formulations, pharmacokinetics



- Communications and ethics courses
  - Motivational interviewing, empathy, cultural competency, management strategies
  - Pros: Simulation of real-life situations and interdisciplinary practice



# PharmD Curriculum, continued

- Internship Hours within PharmD:
  - 1,500 required
  - Division of hours varies by school
    - Practice hours during first 3 professional years, while taking pharmacy courses
    - 4<sup>th</sup> professional year, internship hours only – “Rotations”



Example: University of Connecticut (UConn)  
100 hours each professional year 1-3  
1,200 hours in 4<sup>th</sup> professional year  
(12 Rotations: 100 of retail, 100 of hospital,  
100 of clinic, etc.)

# Pros/Cons of Internship Hours

- Pros
  - Getting internship experience during school
    - Allows students to apply education to the field, and find which area of practice they enjoy more
  - Networking and establishing relationships with professionals for future employment or advocacy efforts
- Cons
  - Increases workload while attending schools
    - Many schools have encouraged internship hours only during summer and winter holidays to balance the workload



# Combined Programs

- Many Examples: Physician Assistant, Research PhD, Business, Law, Public Health, etc.
  - PharmD/MBA
    - 7 years instead of 6, awarded Business Administration Masters and PharmD upon completion
  - PharmD/MPH
    - 7 years instead of 6, awarded Public Health Masters and PharmD upon completion
- Benefit
  - Usually one of these degrees takes 2 years full time, but this allows it to be accelerated, only lasting one year.

# Residencies



- Not required for licensure
- PGY1 and PGY2 residencies
  - Said to give 3 years worth of experience within 1 year of residency
  - American Society of Health-System Pharmacists (ASHP) accredits programs and match PharmD Candidates with residency sites through a rigorous interview/matching process during the 3rd and 4th Professional Year
  - <http://www.ashp.org>
- Salary is generally half of that of a practicing Pharmacist
- Creates a more specialized and marketable resume; critical in hospital specialties

# Many Employment Options!

- **Community and Clinics**
  - Dispensing
  - Prescribing: Immunizations, contraceptives, travel medications
  - Disease State Management: diabetes, hypertension, anticoagulation
- **Hospital**
  - Attend rounds with physicians
  - Nuclear pharmacy, organ transplant, informatics
  - Order, prepare, dispense IV Nutrition
  - Medication Reconciliation and Discharge Management
- **Legislation / Politics**
  - Advocate for advancement of the profession
  - State Associations and Board of Pharmacy
- **Manufacturing and Insurance Companies**
  - Formulation Research, Marketing, Formulary Approval
- **Academics**
  - Communication, chemistry, biology, drug use, disease state

# Question/Answer



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Additional References: [Pharmacist.com](http://Pharmacist.com)