

# **Deeper learning by design:**

## **A systems approach towards a transformative PharmD curriculum**

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# Objectives (Part 1)

*After today's session, you should be able to demonstrate an understanding of...*

- the educational setting at the UNC Eshelman School of Pharmacy;
- the factors that prompted us to undertake curricular transformation;
- the design elements that guide our curricular development process;
- the structure of our new curriculum; and
- our considerations for integrating basic sciences with therapeutics and clinical decision-making.



# About the UNC Eshelman School of Pharmacy

- Located on the campus of the University of North Carolina at Chapel Hill (#63/79 THE/QS WUR)
  - UNC-CH was founded in 1795 as the first public university in the USA
  - Satellite facilities on the campus of the University of North Carolina at Asheville
- School founded March 1897; only **public** school of pharmacy in the state of North Carolina and one of the oldest in the nation
- Ranked #1 among US doctor of pharmacy programs in *U.S. News & World Report* magazine's 2016 edition of America's Best Graduate Schools
- UNC-CH ranked #10 in the world in pharmacy and pharmacology in the 2016 QS World University Rankings
- Receives ca. \$27 million in total **annual research** funding (2012-15); ranked #2 among the US pharmacy schools in federal funding for research

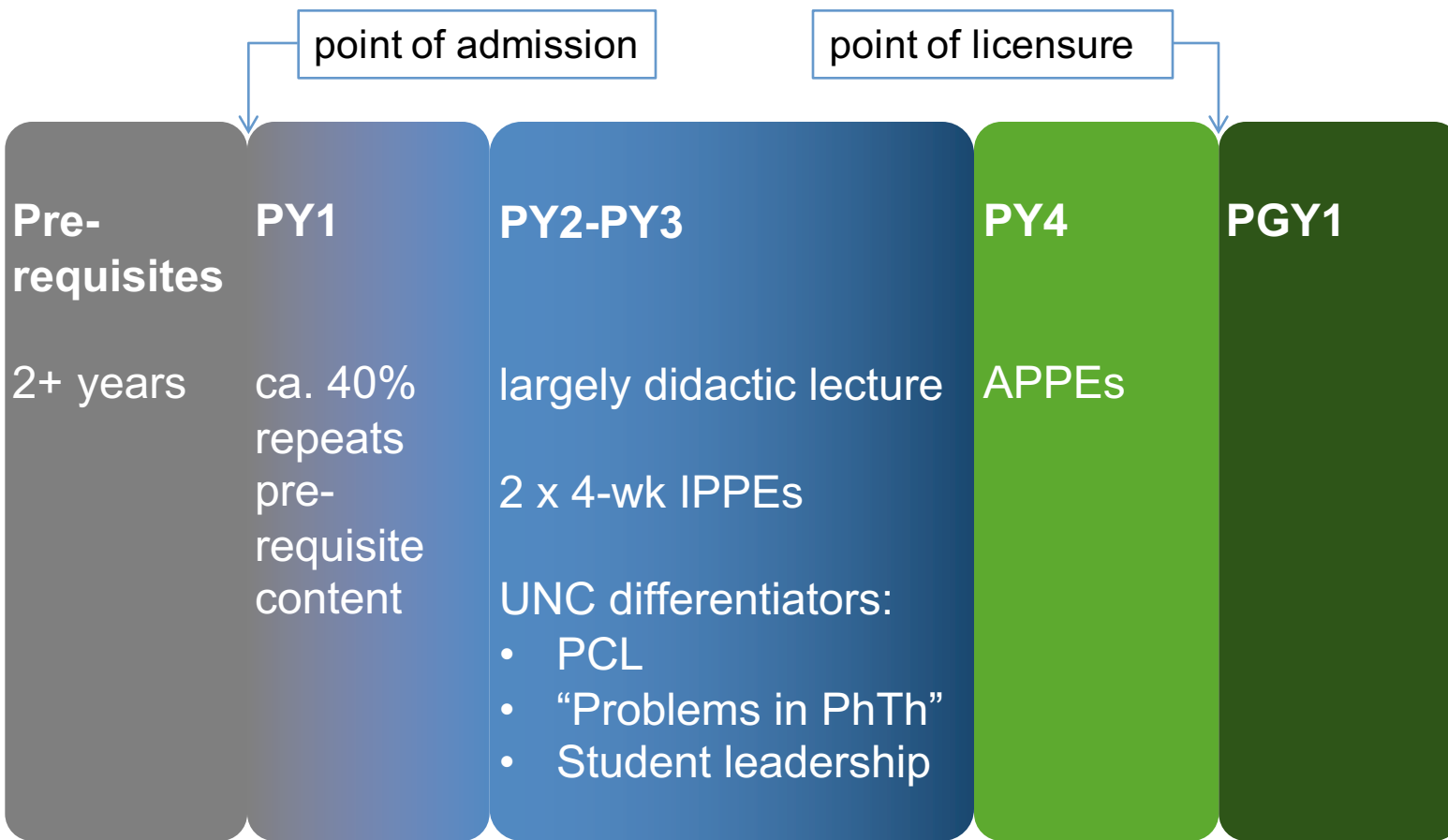


## About our Programs, Faculty & Students

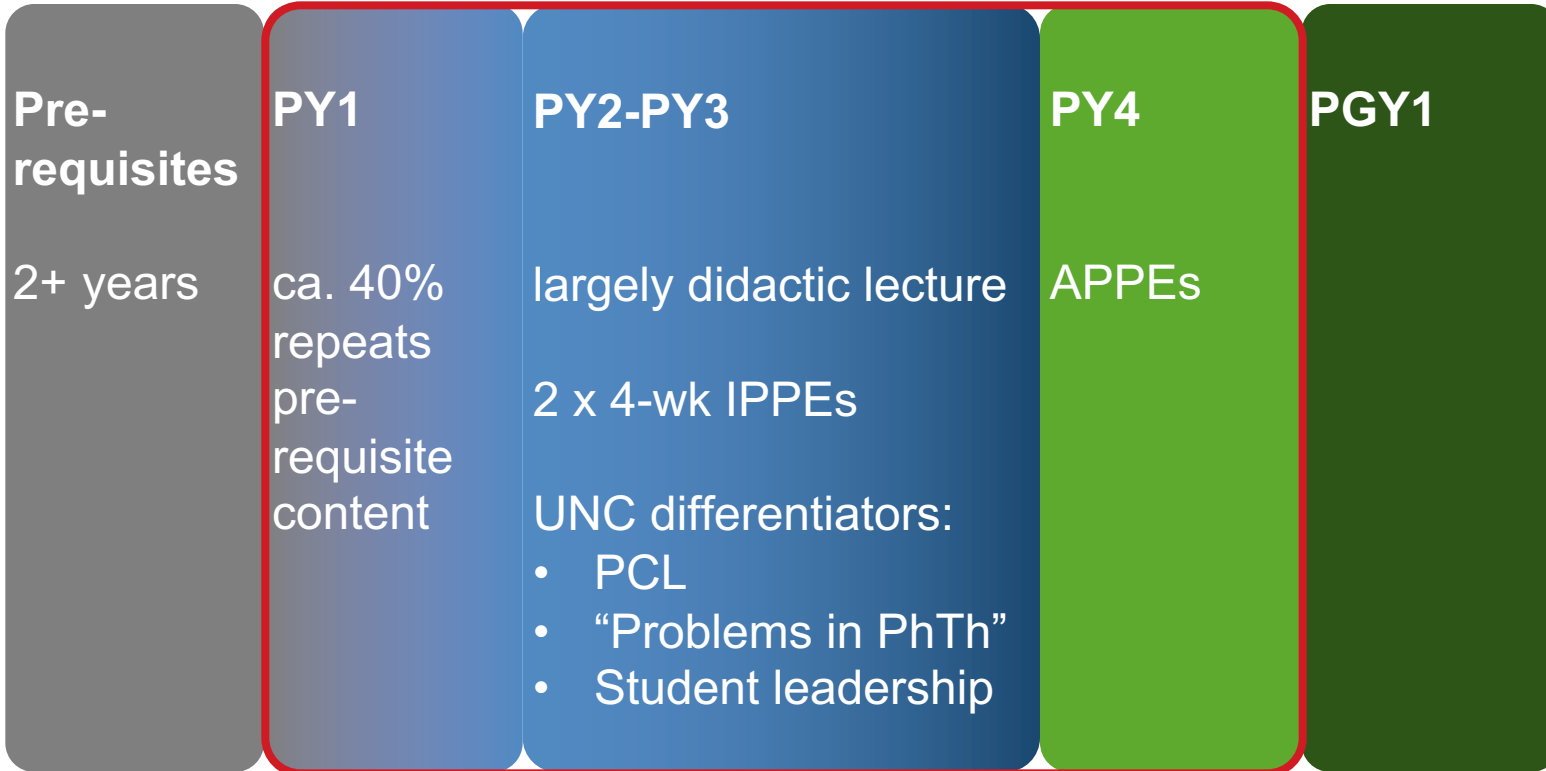
- Faculty size 106: 48 tenure-track; 26 clinical; 32 research
- Doctor of pharmacy (PharmD)
  - approximately 600 professional students
  - 150 admitted each year (125 Chapel Hill : 25 Asheville)
  - 60% North Carolina residents
  - 88% average PCAT percentile rank
- Doctor of philosophy in pharmaceutical sciences (PhD)
  - approximately 100 PhD students plus 50 research staff
- Master of science in pharmaceutical sciences with a specialization in health-system pharmacy administration (MS)



# Traditional PharmD Progression Overview



# Traditional PharmD Progression to Enhanced Patient-Care Readiness



# Why change?



“ ...many companies get comfortable doing what they have always done, with a few incremental changes. This kind of **incrementalism leads to irrelevance** over time, especially in technology, because change tends to be revolutionary not evolutionary. So you need to **force yourself to place big bets on the future.** ”

*- Larry Page, Google co-founder & CEO*

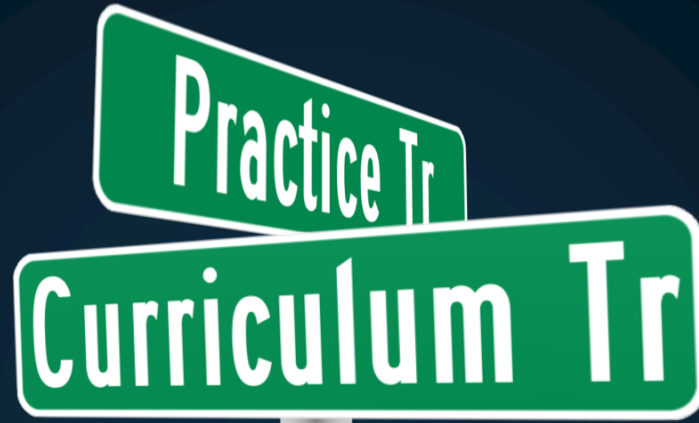




# Why Curricular Change?

- crisis in US higher education
- the 21<sup>st</sup> Century Student
- global need for skills development in pharmacy
- competitive landscape for graduates
- health care changes & opportunities
- societal needs





*... at the intersection of  
Curriculum Transformation  
& Practice Transformation*

# Defining Elements from Guiding Principles

**experiential learning in pharmacy practice:  
early, continual, and immersive**

**evidence-based inquiry: innovation, complex  
problem-solving, research & scholarship**

**reflection on experiential learning;  
complemented by advanced topics & electives**

**foundational courses: emphasize HOTS via  
active learning & pedagogies of engagement**

**re-engineer admissions for non-cognitive &  
meta-cognitive skills; accelerate learning**

## Major Changes:

Our “Big Five”  
Changes  
to Enhance  
Patient-Care  
Readiness



# Design elements



“ In the old world, you devoted 30 percent of your time to building a great service and 70 percent of your time to shouting about it. In the new world, that inverts. ”

- *Jeff Bezos, Amazon founder & CEO*



# Curricular Design by 'Reverse Engineering'

*The Job to be Done* by Pharmacists in 2025 and Beyond



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graph TD; A["The Job to be Done by Pharmacists in 2025 and Beyond"] --> B["Outcomes and Core Competencies"]; B --> C["Advanced Immersion Experiences"]; C --> D["Immersion Complemented by Contextual Advanced Pharmacotherapeutics"]; D --> E["Foundational Content"];
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Outcomes and Core Competencies

Advanced Immersion Experiences

Immersion Complemented by Contextual  
Advanced Pharmacotherapeutics

Foundational Content

# Program Outcomes: Creating Next-Generation Pharmacists

*We will create:*

- Exemplary pharmacy practitioners who provide high-quality, team-based, patient-centered care;
- Leaders and innovators who identify opportunity, lead teams toward improvement and change, and positively impact human health and health care; and
- Lifelong learners who continually strive for positive impact both personally and professionally.



# Proposed Core Competencies

1. In depth knowledge and proficient skills in the pharmaceutical sciences and the practice of pharmacy
2. Accessing and analyzing information
3. Critical thinking and problem solving
4. Communication
5. Collaboration and Influence
6. Adaptability
7. Initiative
8. Curiosity and Inquisitiveness
9. Professionalism and ethical behavior





# How are we achieving these outcomes?

- embrace “**to learn, one must do**”
  - *enhance partnerships with experiential sites and preceptors*
- create time: **decompress didactic load...**
  - *design to facilitate deeper learning, knowledge retention*
  - *integration design principle: “a patient at the end of every lesson”*
  - *use technology to enhance student learning*
- develop expert researchers & clinicians as **excellent teachers**
  - *“scientific” teaching*
  - *interaction with faculty; higher-order thinking & problem solving*
- commit to institution-wide **evaluation and assessment** and a process of **continuous quality improvement**
  - *assessment of student learning (Bloom’s and Bondy)*



# Curriculum 2015 Overview

# Defining Elements from Guiding Principles

**experiential learning in pharmacy practice:  
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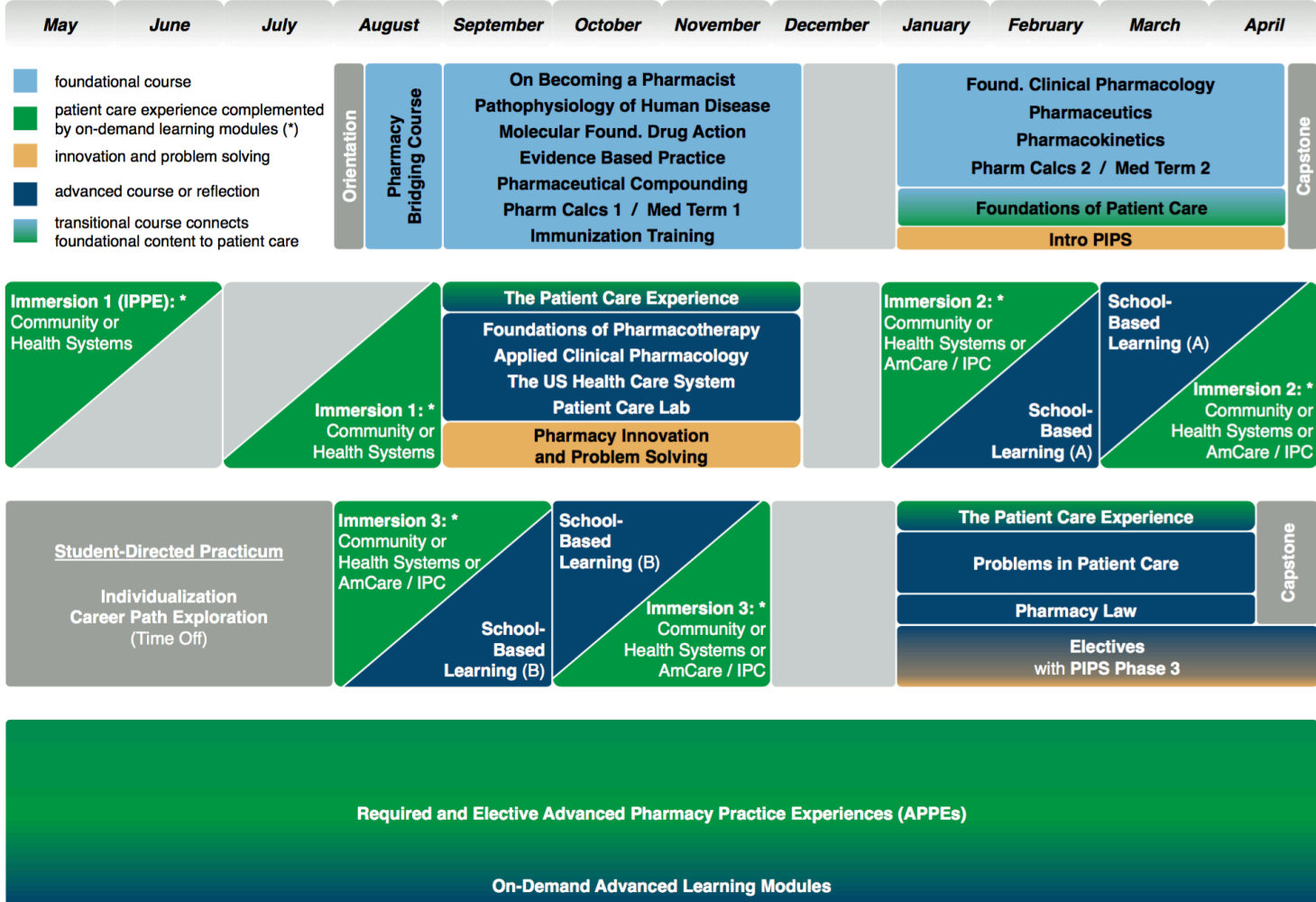
**foundational courses: emphasize HOTS via  
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## Major Changes:

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# Integration of Fundamental Pharmaceutical Sciences into the PharmD Curriculum



# Some Thoughts on Integrating Basic Sciences with Clinical Sciences

- What is the goal? *Is it integration per se?*
- In a perfect world, there would be only one course with complete and seamless integration.
- In practice, such a model is nearly impossible to achieve... and fully impossible to sustain.



# Towards a Balanced and Sustainable Model for Integration

Previous model  
had little  
integration;  
parallel courses  
with sequencing

## PY1

- early stage integration: “patient at the end of every lesson”
- Pharm Sci taught as “deep dives” into disciplines that enable evidence-based pharmacy practice
- team teaching emphasized but not exclusive model

## PY2

- increased integration
- didactic: focus on pharmacotherapy and applied clinical pharmacology
- clinical: on-demand learning modules with Pharm Sci integrated into therapeutic areas

## PY3

- full integration: pharmacotherapy via PBL with Pharm Sci integrated
- planned, not yet implemented



## Part 2: Audience Discussion





# Discussion at Your Tables

5 minutes

Each table will  
report out.

- Is integration of fundamental Pharm Sci into your BScPharm/PharmD program an issue?
- What related challenges are you facing?

# Discussion at Your Tables

10 minutes

Each table will  
report out.

- How do you define “integration”? What models for integration have you seen or read about?
- Is a mastery (understanding) of your favorite discipline an important end to itself? Is it foundational to exemplary practice?
- Are we overemphasizing the importance of our content expertise in the education of pharmacists? [Does your favorite discipline translate into practice? Should it? 😊]
- Should we be working to identify “threshold concepts” in the basic Pharm Sci that facilitate the development of exemplary practitioners for the 21st century?



## Next Steps

- Next steps?
- Continue conversation at 2017 AFPC?
- Collaborate to discuss “threshold concepts” across Canada? Globally?
- Others?

