

# Curricular Redesign

2017 STEM Institute  
March 28, 2017

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# Blue Sky Dream...

**In a perfect world, what would  
your graduates be able to do?**



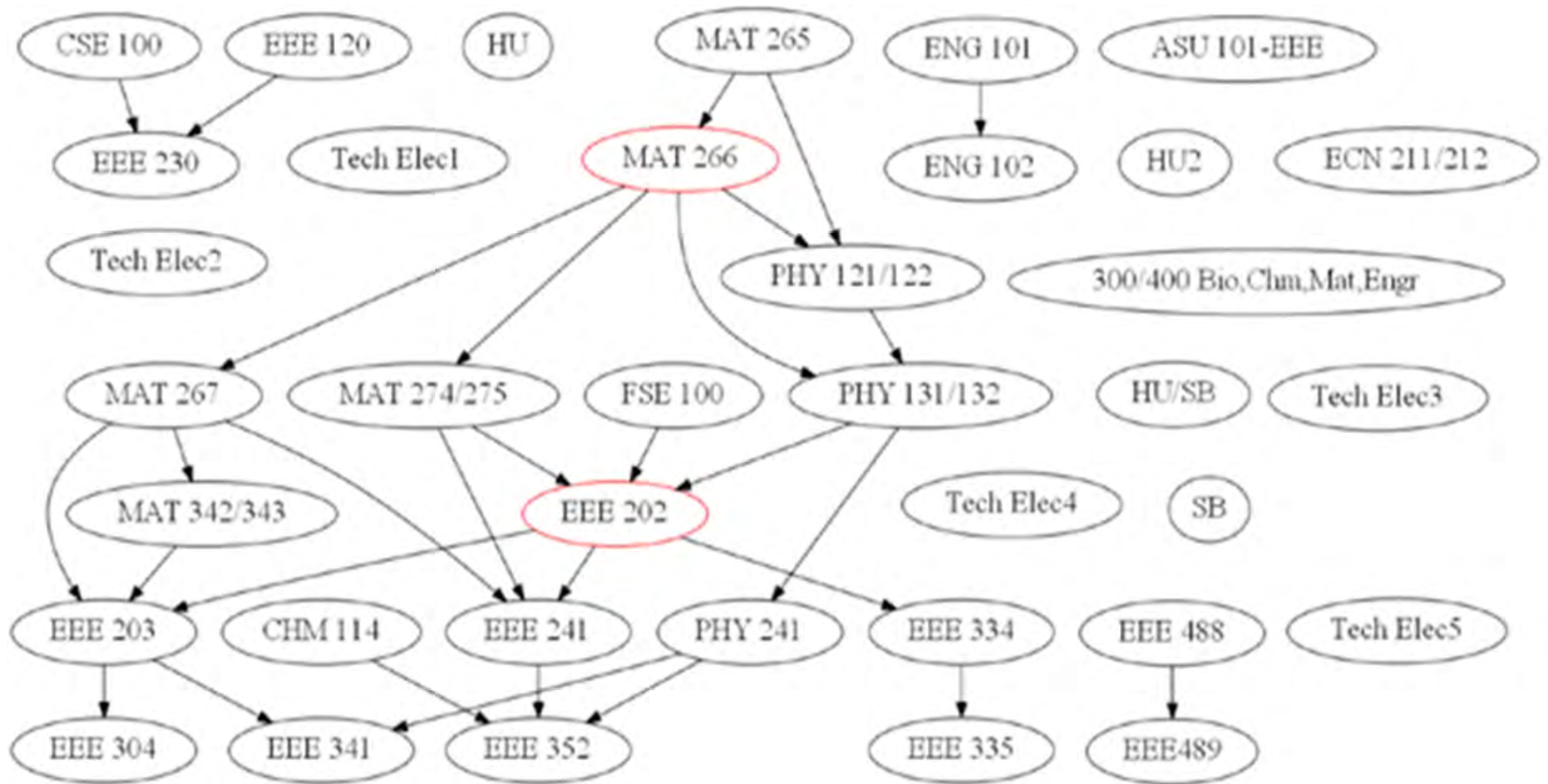
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# The staircase: curriculum mapping

Courses	Intended Student Learning Outcomes			
	Apply the scientific method	Develop laboratory techniques	Diagram and explain major cellular processes	Awareness of careers and job opportunities in biological sciences
BIOL 101	I	I		I
BIOL 202	R	R	I	R
BIOL 303	R	M & A	R	R
BIOL404	M & A		M & A	M & A

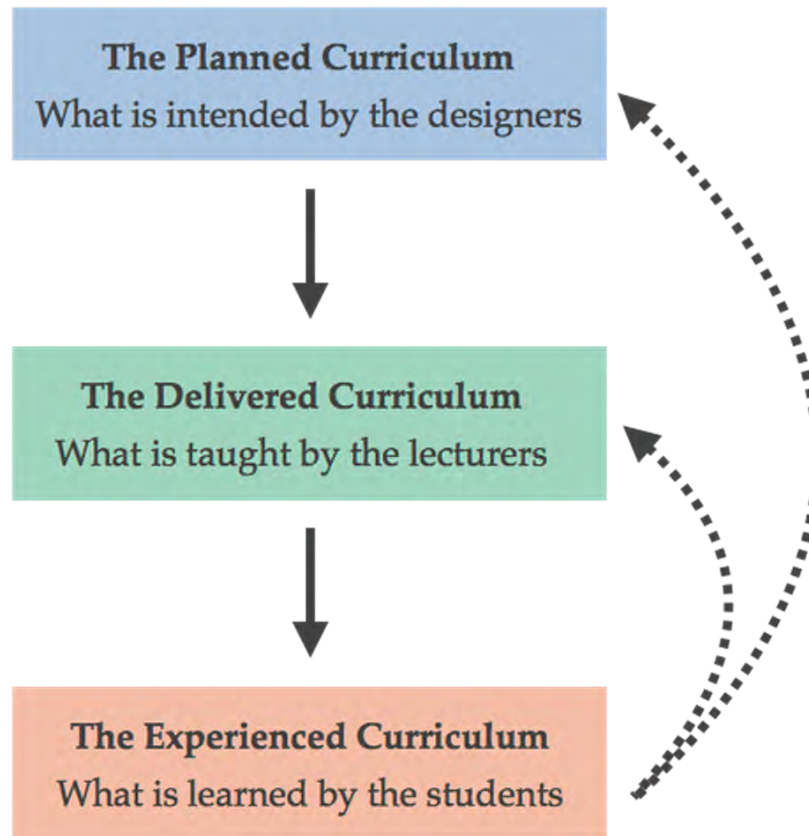
Key: I = Introduced; R = Reinforced and opportunity to practice; M = Mastery; A = Assessment evidence collected

Identify whether various student paths to degree result in intended student learning outcomes

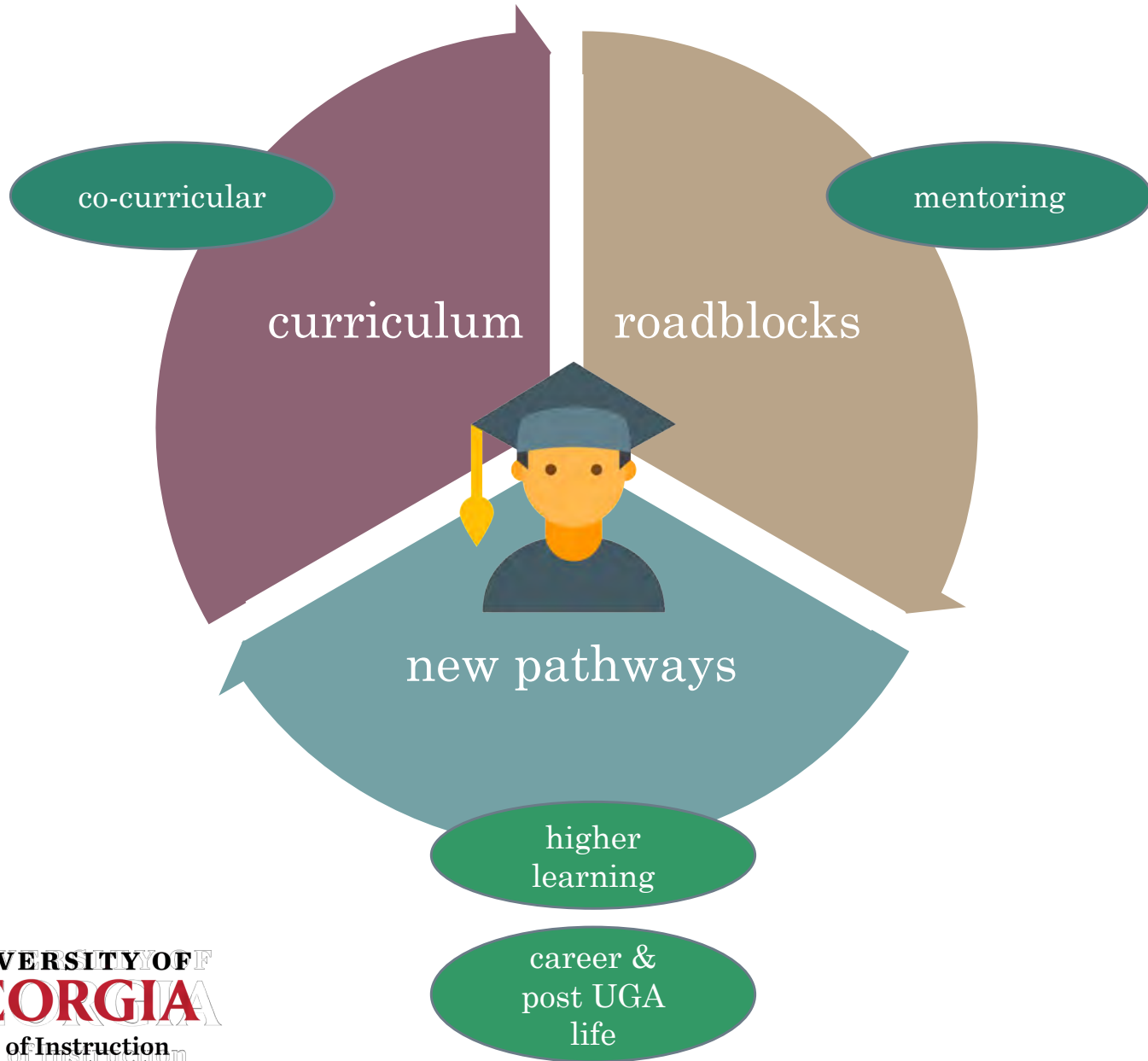


**Effective Curriculum Mapping???**

# Curriculum Mapping at the Course Level



# The Whole Student



# An exercise in Alignment: “Grant-Writing” for the Classroom

## Grant Writing

## Curricular/Course Design

Specific Aims

Learning Goals & Objectives

Experimental  
Plan

Organization and inclusion  
of content, learning  
& teaching methods

Possible Outcomes

Assessments

- Is it evident that I have a clear plan?
- Are the course sessions appropriate and thoughtful?
- Will students actually learn what I claim they will learn?

Alignment!!



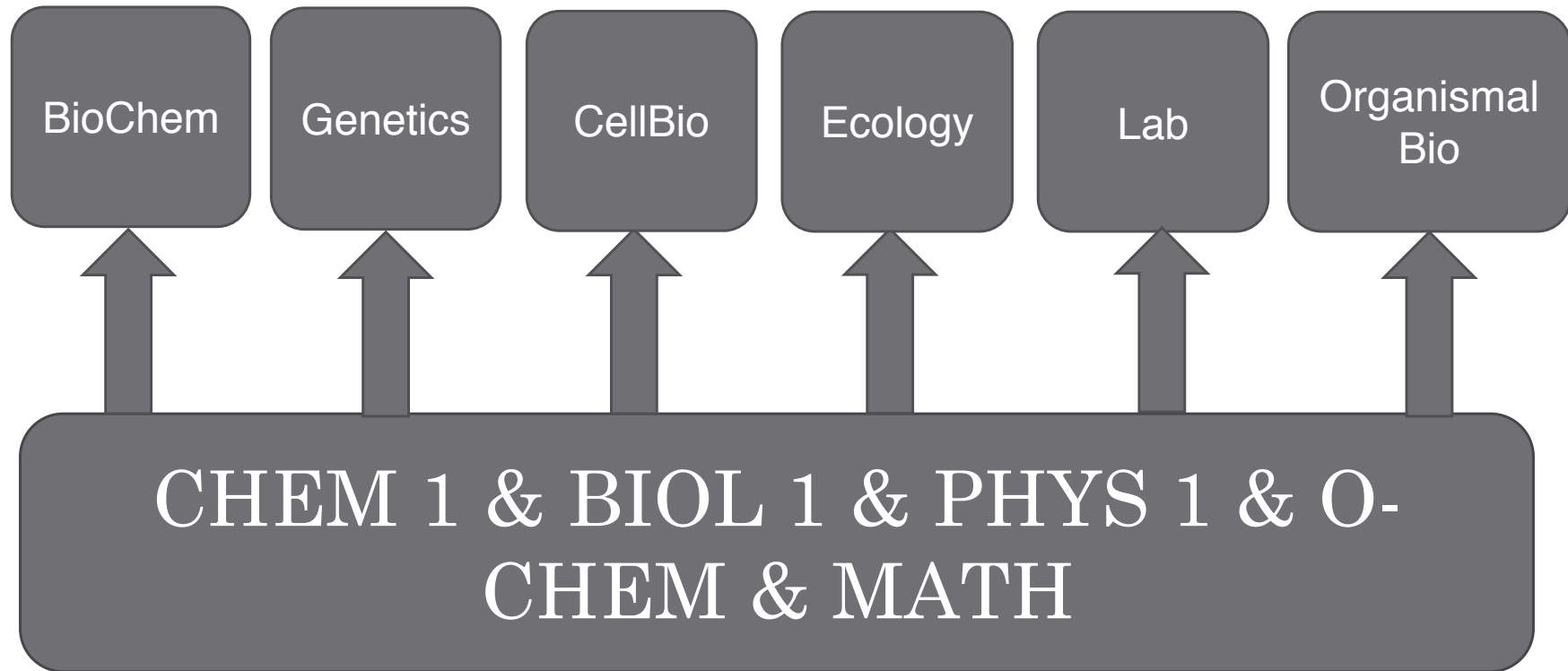
# Models of curricular organization

1. Core and Options
2. Modular
3. Spiral





# 1. Core and Options: Biology Major



# 1. Core and Options

- Encourages students to take responsibility for their own learning
- Opportunity for expert learning in special study modules (albeit in narrow content areas)

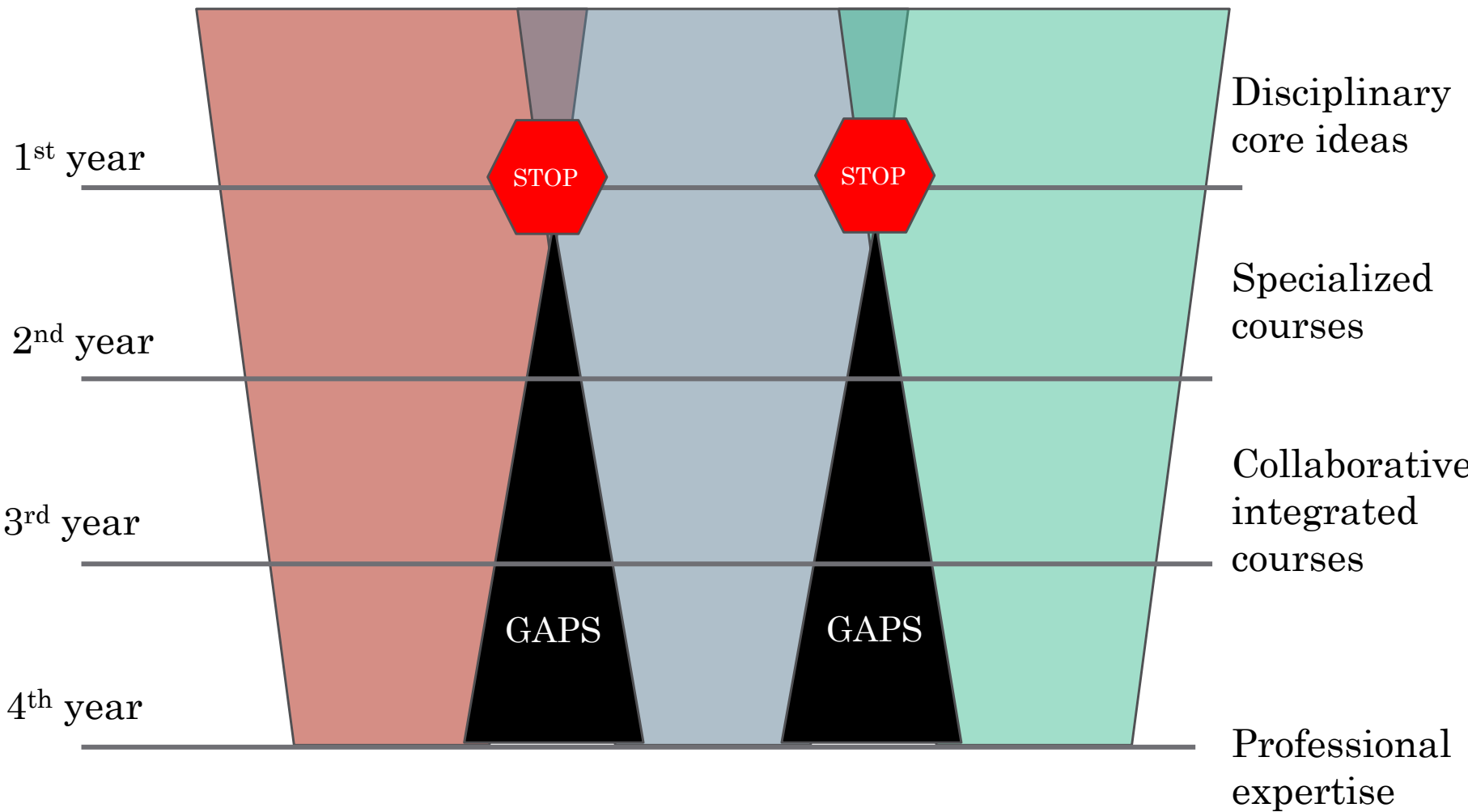
Challenge: reaching consensus on core content



# BIOLOGY

# CHEMISTRY

# MATH



## 2. Modular: Math Major

Complex  
Variables

Differential  
Geometry

Numerical  
Analysis

Probability  
Theory

Graph  
Theory

Differential  
Equations

**\*Each module consists of lecture, tutorial, and lab units**



## 2. Modular

- Each module has its own outcomes, activities, and assessments
- A common structure is often applied across modules
- Flexibility in the ordering of modules

Challenge: concerns that modular structure can endanger coherence in learning



# 3. Spiral

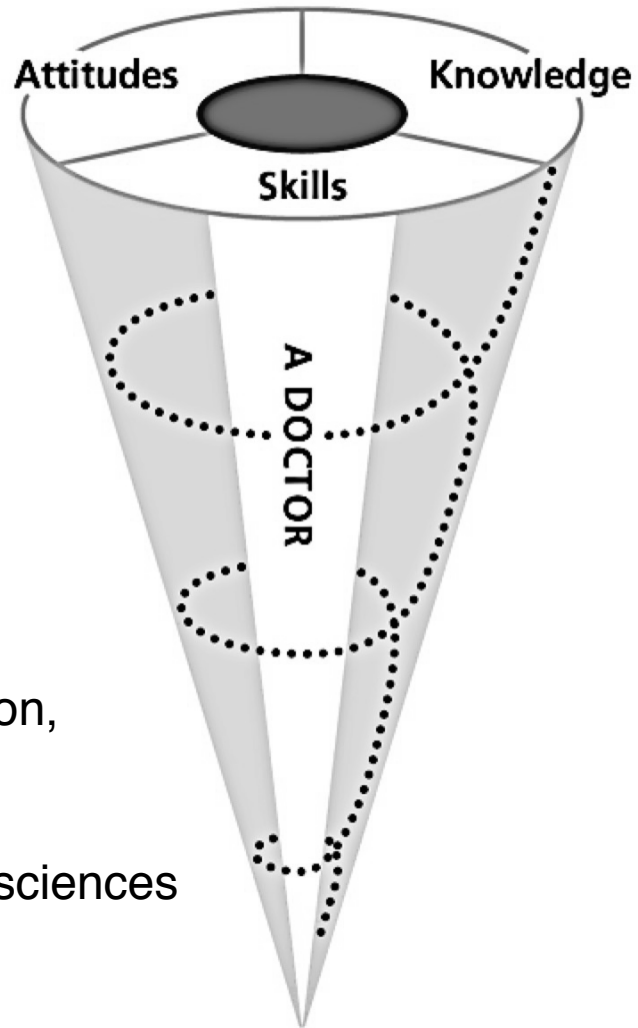
Put theory into practice  
in clinical setting

Relate knowledge to  
clinical case studies

Abnormal structure and  
function

Normal structure, function,  
and behavior

Introduction to medical sciences



# 3. Spiral

- Topics are revisited with increasing levels of difficulty over time
- New learning is related to previous learning (activation of prior knowledge is built in)

Challenge: coordinating the re-presentation of information



# What curricular models could help your students achieve your blue sky dream?

1. Core and Options
2. Modular
3. Spiral





# Questions?



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