Curricular Redesign

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Blue Sky Dream…

In a perfect world, what would your graduates be able to do?
## The staircase: curriculum mapping

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

<table>
<thead>
<tr>
<th>Courses</th>
<th>Apply the scientific method</th>
<th>Develop laboratory techniques</th>
<th>Diagram and explain major cellular processes</th>
<th>Awareness of careers and job opportunities in biological sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 101</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>R</td>
<td>R</td>
<td>I</td>
<td>R</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>R</td>
<td>M &amp; A</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>BIOL 404</td>
<td>M &amp; A</td>
<td>M &amp; A</td>
<td>M &amp; A</td>
<td>M &amp; A</td>
</tr>
</tbody>
</table>

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

Adapted from UH Manoa
Effective Curriculum Mapping???
Curriculum Mapping at the Course Level

The Planned Curriculum
What is intended by the designers

The Delivered Curriculum
What is taught by the lecturers

The Experienced Curriculum
What is learned by the students
The Whole Student

- co-curricular
- mentoring
- curriculum
- roadblocks
- new pathways
- higher learning
- career & post UGA life
An exercise in Alignment: “Grant-Writing” for the Classroom

<table>
<thead>
<tr>
<th>Grant Writing</th>
<th>Curricular/Course Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Aims</td>
<td>Learning Goals &amp; Objectives</td>
</tr>
<tr>
<td>Experimental Plan</td>
<td>Organization and inclusion of content, learning &amp; teaching methods</td>
</tr>
<tr>
<td>Possible Outcomes</td>
<td>Assessments</td>
</tr>
</tbody>
</table>

- 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

CHEM 1 & BIOL 1 & PHYS 1 & O-CHEM & MATH
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
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

Harden and Stamper 1999
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?