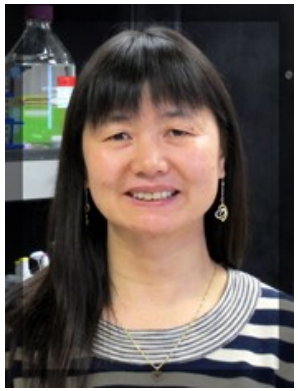
Using Curriculum Mapping and Assessment Techniques to Evaluate a Food Science Curriculum

Dr. Helen Joyner

School of Food Science, University of Idaho

Thank You School of Food Science Faculty!





Why Map and Assess?

- Align curriculum content and learning outcomes
- Compare planned and operational curriculum
- Determine gaps and redundancies

- Determine student competency in discipline
- Follow student progression through curriculum
- Determine what changes are needed

What Is Curriculum Mapping?

- Visual representation of curriculum
  - What is taught?
  - When is it taught?
  - How is it taught?
  - What is learned?
- Cyclical process
- Faculty input needed

What Is Curriculum Assessment?

- Check alignment between
  - Curriculum learning goals
  - Curriculum content
- Reviews curriculum as a whole
  - Multiple assessments needed
  - Good to assess over several years
  - Look at ALL curriculum activities

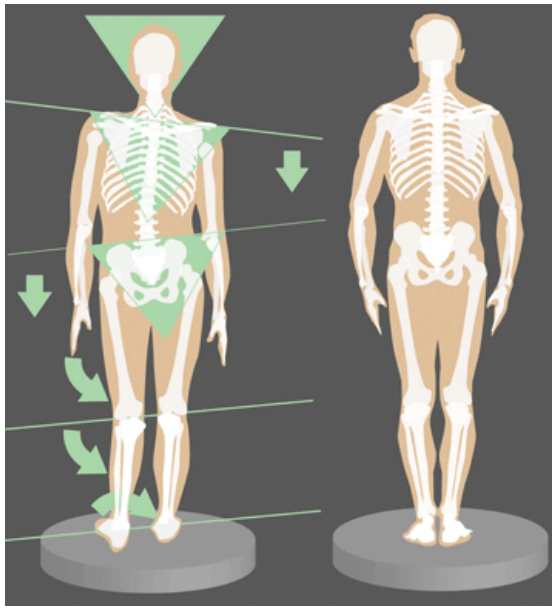


Image from drjessicalee.wordpress.com

- Direct: assess student performance
  - Requires performance standards
- Indirect: assess opinions and attitudes

What Is Curriculum Assessment?

- Direct
  - Homework
  - Quizzes
  - Papers
  - Presentations
  - Projects
  - Portfolios
  - Exams

- Indirect
  - Course evaluations
  - Exit surveys
  - Interviews
  - Focus groups

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SFS Curriculum Mapping

- Revised curriculum learning outcomes
- Used Institute of Food Technologists Core Competencies
  - Greater mapping precision
  - Competency coverage required for accreditation
- Created coverage and depth of coverage maps
  - Food Science option
  - Dairy Management option
- Did NOT include assessments in each course
- Did NOT include method of teaching

SFS Curriculum Mapping

- Depth of competency categories
  - Introduction (I)
  - Developing (D)
  - Mastery (M)
- Determine ingoing and outgoing competency levels through meetings with faculty

	FR Course	SO Course	JR Course 1	JR Course 2	SR Course 1	SR Course 2
CLO 1	I → D		D → D			D → M
CLO 2		I → D	D → D			
CLO 3	I → I	I → D		D → M		D → M

SFS Curriculum Mapping

- Look for courses that do not align with curriculum learning outcomes
- Look for coverage gaps and redundancies

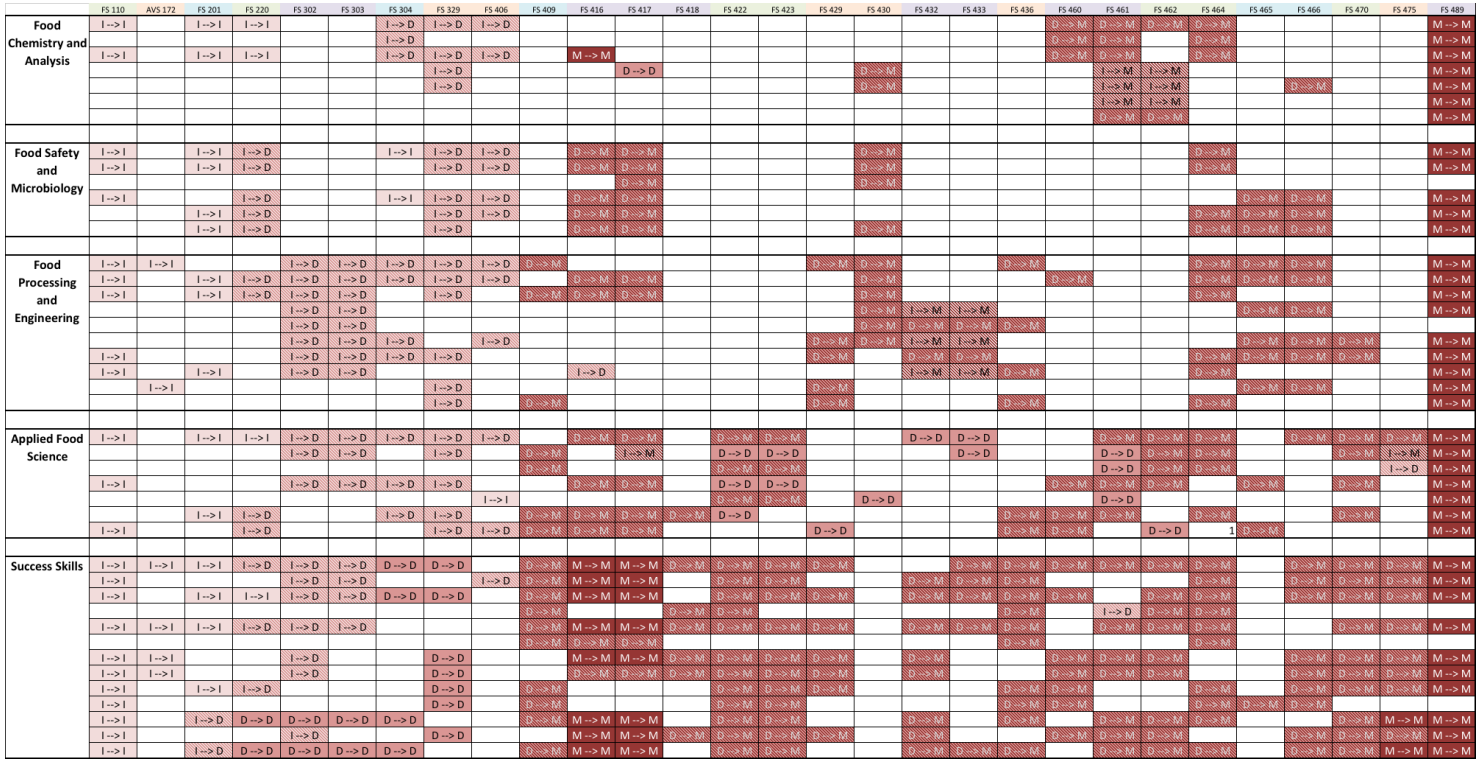
Misalignment?

	FR Course	SO Course	JR Course 1	JR Course 2	SR Course 1	SR Course 2
CLO 1	I → D		D → D			D → M
Gap? CLO 2		I → D	D → D			
CLO 3	I → I	I → D		D → M		D → M

SFS Curriculum Maps

Course progression in curriculum

Core Competencies



	FS 110	AVS 172	FS 201	FS 220	FS 302	FS 303	FS 304	FS 329	FS 406	FS 409	FS 416	FS 417	FS 418	FS 422	FS 423	FS 429	FS 430	FS 432	FS 433	FS 436	FS 460	FS 461	FS 462	FS 464	FS 465	FS 466	FS 470	FS 475	FS 489
Food Chemistry and Analysis	I --> I		I --> I	I --> I			I --> D	I --> D	I --> D																				M --> M
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	I --> I		I --> I	I --> I			I --> D	I --> D	I --> D		M --> M																		M --> M
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Food Safety and Microbiology	I --> I		I --> I	I --> D			I --> I	I --> D	I --> D		D --> M	D --> M					D --> M							D --> M					M --> M
	I --> I		I --> I	I --> D				I --> D	I --> D		D --> M	D --> M					D --> M							D --> M					M --> M
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Food Processing and Engineering	I --> I	I --> I			I --> D	I --> D	I --> D	I --> D	I --> D	D --> M						D --> M	D --> M			D --> M				D --> M	D --> M	D --> M			M --> M
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Applied Food Science	I --> I		I --> I	I --> I	I --> D	I --> D	I --> D	I --> D	I --> D		D --> M	D --> M		D --> M	D --> M			D --> D	D --> D			D --> M	D --> M	D --> M		D --> M	D --> M	D --> M	M --> M
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Success Skills	I --> I	I --> I	I --> I	I --> D	I --> D	I --> D	D --> D	D --> D		D --> M	M --> M	M --> M	D --> M	D --> M	D --> M	D --> M				D --> M	D --> M	D --> M	D --> M	D --> M	D --> M		D --> M	D --> M	D --> M	M --> M
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	I --> I		I --> D	D --> D	D --> D	D --> D	D --> D			D --> M	M --> M	M --> M		D --> M	D --> M			D --> M	D --> M	D --> M		D --> M	D --> M	D --> M				D --> M	M --> M

Dark color, increased mastery

SFS Curriculum Mapping Findings

- General alignment with IFT Core Competencies
- No major gaps or redundancies (coverage in 20-75% of courses)
- Most courses (86%) require oral and/or written presentations
  - Variety?
  - Development between courses?
- Encourage more content application coverage
- Most courses (83%) included critical thinking components
  - Depth unclear
  - Amount of coverage unclear

SFS Curriculum Assessment

- Used 4 selected IFT Core Competencies
  - More targeted assessment
  - Limited data collection time
- Direct assessment of 4 courses
  - Core Food Science knowledge
  - Application to real-world problems
  - Oral and written presentation skills
- Worked with faculty to set benchmarks, collect and analyze data

SFS Curriculum Assessment Findings

- Students have good mastery of core Food Science concepts
  - Average score ≥80% on engineering assessment
- Students have trouble applying concepts
  - Average score of 58.5% on assessment
- Students have good oral and written presentation skills
  - Average score ≥90% on oral and written assessments
- Number of students assessed varied from 16-25

Putting It All Together: Recommendations

- No major curriculum or course changes needed
- Incorporate more critical thinking and application exercises into courses
- Increase diversity of writing assignments
- Develop better assessment plan
- Develop reporting and storage plan for mapping and assessment data

- Keep it going!

SFS Future Plans

- Review map every 2-3 years and determine curriculum changes
- Develop full curriculum assessment plan
  - 3-year cyclical plan
  - Assesses all curriculum learning outcomes
  - Follows students over several years
  - Uses indirect and direct assessments

Main Takeaways

- Faculty should be involved
- Assessment is key piece of mapping process
- Make changes with caution
- Be sure to close the loop!
- Maps should be living documents

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