





Basic Medical Science Course Directors in Integrated Medical Curricula

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Presenter Disclosure Information

I have no financial relationships with any commercial interest related to the content of this activity to disclose.


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Objectives

- Discuss the creation of an integrated systems block curriculum from the perspective a basic medical scientist.
- Describe the challenges for a basic scientist in designing integrated courses.
- Identify resources that are helpful.
- Describe how subject matter can be chosen and prioritized.
- Provide specific strategies for educators to design or refine their own curriculum.


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Scenario

As a Basic Science Course Director for discipline X, you have been asked to participate on a curriculum renewal workgroup. The charge to the workgroup is to review and revise the preclinical curriculum and design an integrated curriculum. You are not sure what this entails.

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Define: Integrated Curriculum

- **Integrative**
 - "...connecting skills and knowledge from multiple sources and experiences; applying theory to practice in various settings;"

Huber, M. T., Hutchings, P., & Gale, R. (2005). *Integrative Learning for Liberal Education*. peerReview, Summer/Fall.
- **Integrated curriculum**
 - refers to a non-compartmentalized approach to basic science learning

Smith SR. *Med Health R I*. 2005 Aug;88(8):258-61.

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There is No One Way To Integrate

Each medical school needs to select methods appropriate for its own goals, structure, and constraints.

**Interdisciplinary integration in medical education:
theory and method**

D. E. BENOR
Medical Education, 1992, 16, 355-361

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How Will Integration Occur?

- Organ Systems
- Stages of Human Development
- Disease or Clinical Presentation
- Medical Competencies

Adapted from Goldman and Shroth, Acad. Med. 2012;87:729-734

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Historical Perspective at UA COM
 University of Arizona College of Medicine–Tucson: 1967

Discipline-Based
 Phoenix campus site for clinical rotations: 1992

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Curriculum Renewal: Began in 2003

Integrated Curriculum

Implemented in Tucson: AY 2006

Year 1 Implemented in Phoenix: AY 2007

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Themes

Basic Sciences Clinical Sciences

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Integrative Curriculum

- Physiology
- Anatomy
- Immunology
- Microbiology
- Pathology
- Pharmacology
- Biochemistry

- Neurology
- Psychiatry
- Cardiology
- Pulmonology
- Nephrology
- Hematology
- Oncology
- Gastroenterology
- Orthopedics

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Themes

Basic Sciences Clinical Sciences

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Integrative Curriculum

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Horizontal ↑ Vertical

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Overview of Preclinical Block Curriculum

Year 1	Prologue	Clinical Anatomy Molecular Basis of Life and Disease (MBLD)	Capstone	Neurological Sciences (NLS)	Capstone	Cardiovascular, Pulmonary, Renal Systems (CPR)	Capstone	Musculo-skeletal Systems (MSS)
	Doctoring Longitudinal Clinical Experience Scholarly Project							
Year 2	Biomedical Informatics	Gastrointestinal System, Metabolism, Diabetes, Obesity (GIMDO)	Capstone	Reproduction, Growth & Development Over the Lifespan (RGDL)	Capstone	Infectious Disease (ID)	Hematology Oncology (HemOnc)	Capstone
	Doctoring Longitudinal Clinical Experience Scholarly Project							

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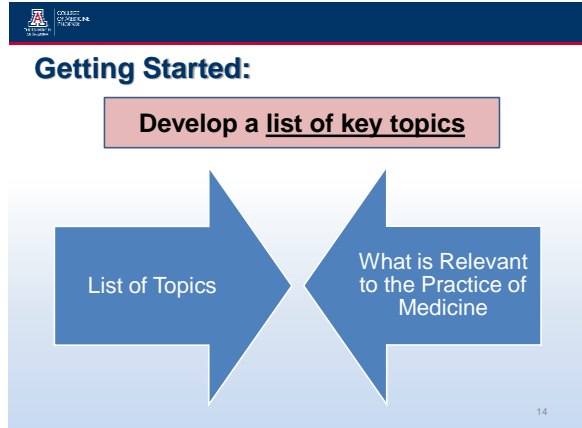
Longitudinal Themes

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Weekly Structure Example from the CPR Block

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 am	CBI open	Electrical Activity of the Heart (BMS)	EKG Interpretation (CS)	Cardiac Development (BMS)	CBI close
10:00am	Impact of Cardiovascular Disease in the US	Cardiac Structure and Imaging (BMS, CS)	Antiarrhythmic Drugs (BMS)	Physiology Lab: EKG	Cardiac Contraction (BMS)
11:00am					
Noon	Lunch				
1:00pm	Integration of ANS Concepts with CPR (BMS, CS)	LCE Group 1	LCE Group 2	LCE Group 3	ECGs and Pharmacological Pairings (TBL)
2:00pm	Electrical Activity of the Heart (BMS)				
3:00pm					
4:00pm					
5:00pm					

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Seek A Clinical Co-Director!

- Surround yourself with bright people!
- Start building a team
 - Heads of other disciplines
- Librarian
 - Aware of the curriculum and notify you of pertinent information

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Resources

- National Guidelines
 - AAMC Medical School Objectives Project
<https://www.aamc.org/initiatives/msop/>
 - USMLE Step 1 content outline
<http://www.usmle.org/step-1/>
 - Discipline-based societies (American Physiology Society)

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Resources

- Textbooks – Scrutinize and compare table of contents

FIRST AID FOR THE BASIC SCIENCES

- Utilize curriculum sharing with other schools

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Get Clinician Input

- Circulate your list to practicing clinicians
 - Seek out a resourceful person in the administration unit who can identify clinicians in the area
- Continue to modify your list

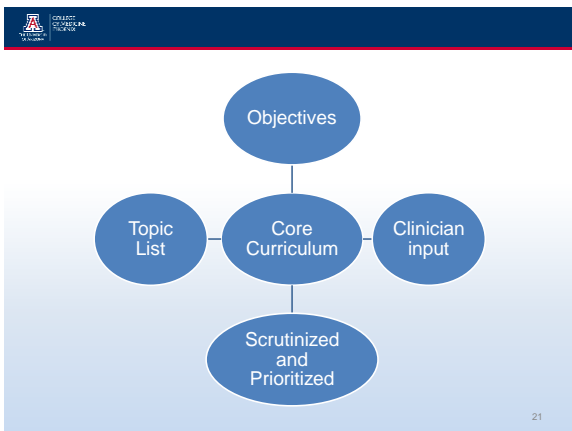
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At the Same Time, You Should be:

- Writing objectives, goals and/or outcomes
- Choosing textbook or other resources
- Drafting a syllabus

Choosing Subject Matter and Prioritizing

- Director is not necessarily expert at all content
 - Seek clinical input
 - Ask for recommendations
 - Audits of disciplines
- As you bring in good teachers, get their input on additional content
- Doesn't all have to go in preclinical years



Scheduled Meetings

- Theme directors meeting
- Block, Course, Theme Subcommittee meeting
- Curriculum Committee meeting – final approval

Preparing for Class Sessions

Teaching Format	Teaching Methods	Use of Technology
Large Group	Interactive Lecture Team Learning	Audience Response System
Small Group	PBL Case-based	Videos
Independent Learning	Podcast Voice-over PPT Online module	Camtasia Embedded test Hyperlinks
Simulation	High-fidelity Low-fidelity Computer-based	SimMan Online Module

Orienting Clinicians to Teach in the First Two Years

- Clinicians teach differently than basic scientists
 - Teach from a practice-based perspective
- Role model the competencies
- Provide faculty development

Orienting Clinicians

- Introductory letter denoting
 - Where students are in the curriculum
 - What they've been taught already
 - Number of slides expected
 - Time frame of session
- Can't cover every clinical entity
 - 3-5 learning objectives based on common occurrences
 - Be proactive and provide objectives!

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Lesson Plan: Please Choose One

Lesson Title: _____

Session Leader: _____

Date: _____

Start Time: Please Choose One End Time: Please Choose One

Co-Author with a Clinician

Please check all subjects that are represented in this lesson:

<input type="checkbox"/> Anatomy	<input type="checkbox"/> Geriatrics	<input type="checkbox"/> Oncology
<input type="checkbox"/> Behavioral Sciences & Psych	<input type="checkbox"/> Hematology	<input type="checkbox"/> Pathology
<input type="checkbox"/> Biochemistry	<input type="checkbox"/> Histology	<input type="checkbox"/> Pediatrics
<input type="checkbox"/> Biomedical Informatics	<input type="checkbox"/> Immunology	<input type="checkbox"/> Pharmacology
<input type="checkbox"/> Cell Biology	<input type="checkbox"/> Ethics and Humanism	<input type="checkbox"/> Physiology
<input type="checkbox"/> Embryology & Dev. Bio	<input type="checkbox"/> Microbiology	<input type="checkbox"/> Public Health, Population Medicine, Policy, and Prevention
<input type="checkbox"/> Endocrinology	<input type="checkbox"/> Molecular Biology	<input type="checkbox"/> Women's Health
<input type="checkbox"/> Genetics	<input type="checkbox"/> Neurosciences	

Medical Subject Headings
Please list MeSH terms that describe the content of this session. (Click on "Medical Subject Headings" above to ensure the use of the National Library of Medicine's controlled vocabulary.) _____

Competency Category: Check the appropriate competencies that correspond to the provided objectives.
 Medical Knowledge Interpersonal Communication Patient Care Professionalism
 Practice-based Learning Systems-based Practice

Learning Objectives (3 - 5 objectives per 50 minute session): [Please list applicable MeSH term after each learning objective.] _____

Arizona Med
College of Medicine | Health Sciences Library | WebMail

Neurological Sciences 2015

Announcements : Manage
Announcements for Everybody
Academic Calendar 12/13 (Current: 12/16/11 9:00 AM)

Curriculum Management System

October 10, 2011
Prev Day Today Next Day

CAL 8:00 AM - 9:10 AM ASU C103 (Phn. Standard)

CBI Case-Based Instruction
Diazot
Phoenix (current)

SRV Surveys
No surveys are available at this time

ILM Independent Learning
No ILMs are available at this time for this block or rotation.

Change Campus
Diazot
Phoenix (current)

Search ArizonaMed
Search Term: _____
Academic Year: 2012-2013
Campus: Phoenix

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Cross-Referencing Material

Myositis, Osteomyelitis, Joint Infections

Type: Interactive Lecture
Date: All Groups: Feb 7, 09:00 - 10:15 (Room:ASU C103)
Lecturer(s): Rai, Mandeep
Professional Attire: No

Objectives
Every student should be able to:
Recognize the causes and clinical manifestations of acute and chronic osteomyelitis (MK)
Explain the diagnostic and laboratory tests and treatment for osteomyelitis (MK PC)
Recognize the causes and clinical manifestations of common infectious muscle disorders (MK)
Recognize the causes and clinical manifestations of joint infections (MK)
Explain the diagnostic and laboratory tests and treatment of joint infections (MK PC)

Activities
Reference material: MSS Fischione- Structure Of Musculoskeletal Tissues 4-26-2011; Zack- Anatomy and Function of Joints 4-26-2011; Ladha- Myopathies 5-18-2011

Materials
LP: Myositis, Osteomyelitis, Joint Infections (WordProcessingDoc - Required Material)
PPT: Osteomyelitis, Myositis, and Joint Infections (PowerPoint - Required Material)

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Planning Methods of Assessment

- Integrative Assessment
- Formative → Summative
- Every session has associated "Thought Questions"
- Summative exams (USMLE-style multiple choice) scheduled 3-4 weeks
- Exam Review Teams → Basic Scientist Clinician Theme

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Scale and Timeline

- Enlist a partner
- Time to complete
 - A year is optimal!
- First time launch: sit in on every session

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Curriculum Evaluation

- Curriculum work group formed to review performance:
 - Taking into account
 - Exam statistics
 - Student evaluations
 - Block director self study
 - Student focus group meeting
- Recommendations approved by curriculum committee for improvement the following year

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Maintaining Relationships

- Provide feedback
 - Not only from student evaluations, but on exam question editing and results

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Challenges and Resolutions

- Stubborn resistance
 - Be willing to change the paradigm
 - Be willing to compromise
- Cover material in less time
 - Provide means for self-study
- Scheduling
 - Flexibility vs firmness
 - Need both

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Challenges and Resolutions

- Do you need the expert in the field?
 - Engage primary care physicians
- Receiving materials late
 - Establish expectations and deadlines clearly and early
 - May have to send several reminders to get materials on time

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Challenges and Resolutions

- No shows
 - Develop a teaching contingency plan
- Clinician turn-over
 - Keep a file of contacts
- Too many cameos - Work toward consistency
 - Encourage participation in more than 1 session
 - Continue to engage the good teachers

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Challenges and Resolutions

- Sequencing
 - Many different ways; continue to refine
- Choosing an appropriate reference textbook
 - Many are discipline based
- Exam question writing
 - Training clinicians and other faculty to write USMLE style questions

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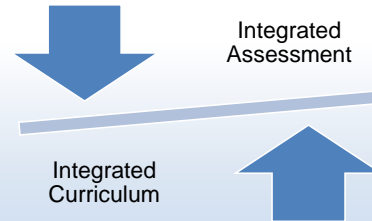
Challenges and Resolutions

- Uncomfortable faculty
 - Teaching outside their comfort zone
 - Build relationships
- Communication between disciplines
 - Encourage discussion of topics in the context of health and disease
- Tracking content
 - Build a curriculum management system

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Outcomes



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Summary

- Allow plenty of time
- Engage many people
- Utilize all available resources
- Link objectives, content, teaching methods to optimize learning
- Create integrative assessments
- Continue to develop and refine
- Always be open to new ideas

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Additional Resources



Perspective: **Deconstructing Integration: A Framework for the Rational Application of Integration as a Guiding Curricular Strategy**

Ellen Goldman, EdD, and W. Scott Schroth, MD, MPH
Acad Med. 2012;87:729-734.

Provides an organizational framework for curricular integration from the program level to the course level to the session level.

The integration ladder: a tool for curriculum planning and evaluation

Ronald M Harden *Medical Education* 2000;34:551-557

Provides a framework based on degree of integration presented over a continuum.

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