Honoring Our Heritage and Forging Forward into the Future: Curricular Change and Social Accountability at VTCSOM

TEACH Health Professions Educator Series

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VIRGINIA TECH

Objectives

As a result of this session, participants will be able to:

1. Explain the social accountability framework for academic medicine.
2. Illustrate several different approaches pedagogical approaches to pre-clerkship curriculum used in both the US and Canada (inclusive of the patient case presentation model).
3. Describe the approach to curricular change and evolution at VTCSOM.
4. (Briefly) highlight the future work in Phase 2-3 of the curriculum.

Education Frameworks/Concepts Used in Presentation

1. Strategic Planning and Change Management Approaches – John H. Dobbs, John F. Dobbs
2. Change Management Model ("study, envision, design, build, implement") – Kurt Lewin et. al.
3. "Education Scans" – generalized conceptual model, related to curriculum development (Jay McTighe, David Kern)
4. Education Science Principles – numerous (Hattie, Bloom, Schwartzstein, et al.)
5. Guiding/Operating Principles – Ron Harden, Michael Fullan
6. Key Driver Diagrams – several, Institute for Healthcare Improvement
7. Patient Care Presentation Model in Medical Education – U. of Calgary, Dr. Rachel Ellaway

Social Accountability of Medical Schools

1. Workforce shortages (Virginia, USA, world)
2. Medical student "recruitment" and debt
   - Impacts specialty choice
   - Impacts URiM within specialties
   - Impacts location of practice
3. Graduates' skills for current and future practice (beyond medical knowledge)
4. Medical education's need to recognize the time lag from training to practice
   - Today's matriculant to medical school will be practicing ~July 2031
5. Patient health outcomes

Quintuple Aim

	Responsibility	Responsiveness	Accountability
Social Needs Identified	Implicitly	Explicitly	Anticipatively
Institutional objectives	Defined by faculty	Inspired from data	Defined with society
Quality of graduates	Good practitioners	Meeting criteria of professionalism	Health system change agents
Focus of evaluation	Process	Outcome	Impact
Assessors	Internal	External	Health partners

Boelen et al. Social accountability: The extra leap to excellence for educational institutions. Medical Teacher, 2011.
The Quintuple Aim for Health Care Improvement – A New Imperative to Advance Health Equity. JAMA, 2022.

Background and Rationale

- VTCSOM began as a medical school in 2008 – and we have had tremendous success.
- Since that time, our curricular approach has remained consistent.
- Medical schools typically undergo curricular revisions every 6-8 years to adapt to:
  1. Evolving needs in society, and,
  2. Educational science.
- The Liaison Committee for Medical Education (LCME) has ↑ requirements
  - ~50% of policies/requirements are new for our 2026 review (vs 2018 review)
- The primary needs for change were to:
  - Improve alignment with LCME requirements
  - Enhance focus on patients and clinical applicability
  - Prepare learners for subsequent phases in their training (clerkships, internships, etc.)
  - Evolve the focus towards competency-based medical education (and precision education)

Our Strategic Planning Approach

2022-current day

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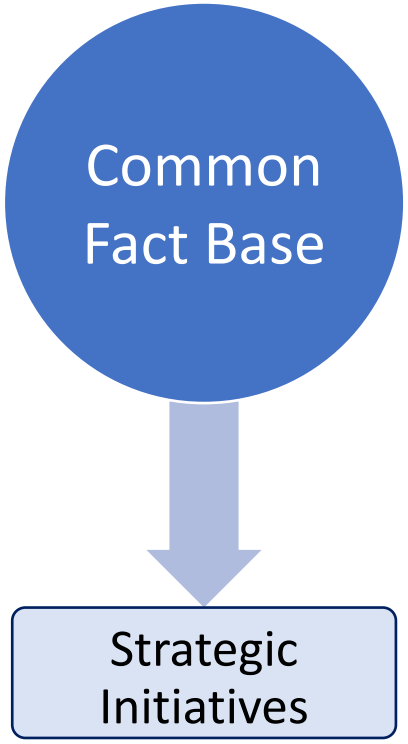
Our Strategic Planning Approach

>300 individuals contributed to the process



- AAMC Year 2 Questionnaire
- Graduation Questionnaire
- Course, phase, curriculum evals
- Graduate Profiles for Specialties
- Work Hours Report
- Competency/Outcomes Report
- (assessment of what is not present)

Dobbs, Dobbs. Strategic Planning: A Pragmatic Guide. 2016.

Our Collaborative Processes

2022-current day

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Timeline and Deliverables

VTCSOM Strategic Planning Medical Education Mission

Primary Goals of Strategic Planning Process

- Goal 1: January 2023, curricular schedule change approved by BIC1-2, MCC.
- Goal 2: August 2023, curricular revisions approved by BIC1-2, MCC.
- Goal 3: September 2023, core components of curricular revisions finalized.
- Goal 4: July 2024, curricular revisions launched.

Task Forces
Committees

We are here!

- Design Task Force 1 – Core Strategy
- Design Task Force 2 – Holistic Assessments
- Design Task Force 3 – Phase 1 Restructure
- Design Task Force 4 – Phase 2 and the new "Phase 3"
- Design Task Force 5 – Faculty Identity and Support
- Design Task Force 6 – Professional Identity Formation

Operationalizing Curricular Revisions

- Objectives Revision Task Force
- PBL Revision Task Force

Operationalizing Curricular Revisions

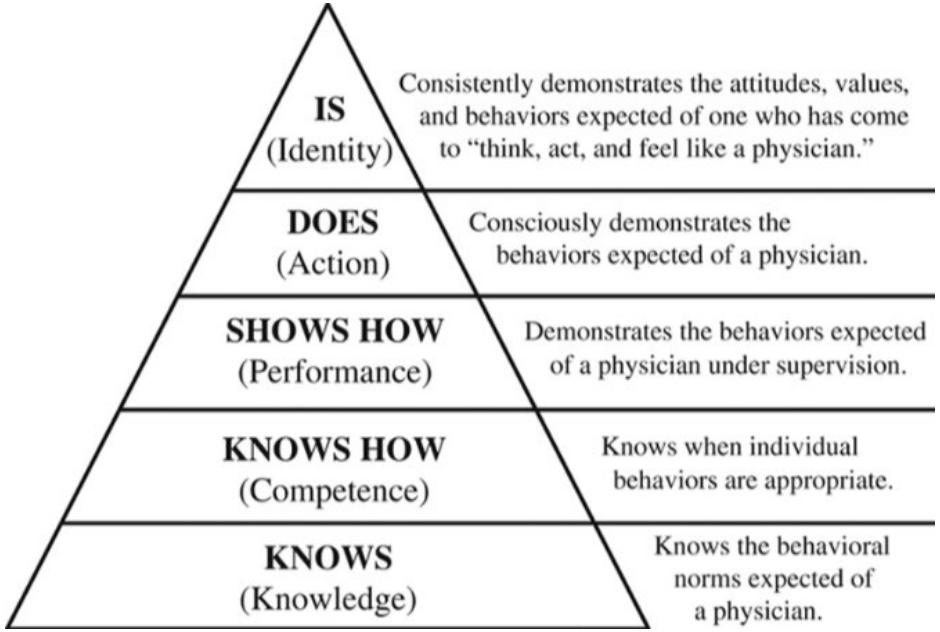
- Strategic Planning Committee
- Office of Medical Education Research, Scholarship, and Learning
- Accreditation and Academic Alignment Team
- Planning Team
- Data and Evidence Team

Nov Dec Jan Feb Mar Apr May June July Aug Sep Oct Nov Dec Jan Feb Mar Apr May June July

2022 2023 2024

Study | Envision | Design | Build | Implement

Our Primary Goals



Cruess, Cruess, Steinert. Amending Miller's Pyramid to Include Professional Identity Formation. Acad Med 2016
Gonzalo et al. A Constructive Reframing of Student Roles Using a "Communities of Practice" Lens. Acad Med 2017
Hunderfund et al. "Finding My Piece in That Puzzle." Acad Med 2022

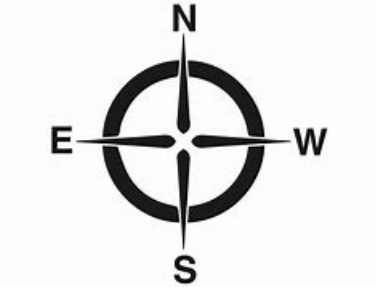
VTCSOM's Professional Identities

Physician who possesses skills and qualities related to learning, adaptability, ability to thrive in changing environments, and ongoing personal and professional development.

Physician leader who uses a systems thinking mindset in his/her professional role to develop/use the knowledge and skills necessary to contribute to the holistic needs of patients, populations of patients, and health systems to achieve the best outcomes.

Physician who has the ability to integrate clinical medicine and scientific inquiry and research, bridging the gap between bench sciences and direct patient care.

Guiding Principles



VTCSOM Guiding Principles (aligned with educational science principles)

The Phase 1 Curriculum will be based on the following Guiding Principles:

1. Curriculum will promote skills required for the professional identities (inquiry, e-intelligence, growth mindset, systems thinking).
2. Foundation of curricular weeks will be patient presentations.
3. Curricular integration will occur horizontally (across domains/disciplines) and vertically (across time) with all four value domains.
4. Curriculum integration will be interdisciplinary.
5. Curriculum design will spiral concepts across the Phase, ensuring appropriate spaced repetition and long-term retention.
6. Learning needs will drive course design and pedagogy (vs fixed curricular time).
7. Complexity of learning will increase progressively between curricular units to transfer knowledge and prepare for clerkships.
8. Curricular delivery will be grounded in learning methods that promote higher-order reasoning (not just knowledge).
9. Learner advancement will be progressively assessed with formative, low-stakes and high-stakes summative assessments.
10. Curriculum will seek student perspectives about learning approaches and improvement areas.

Phase 1: The Key Changes

The Key Components of the Curricular Changes

Received notification of approval from LCME for proposed changes on March 5, 2024

Goals:

- Enhance alignment of curriculum
- Optimal integration of curricular components
- Early clinical immersion
- Promotion of self-directed, life-long medical learners
- Foster skills & mindset foundational for transition to residency

Changes:

- Reduction of Phase 1 class hours to align with national mean
- Phase 1 concludes in January of MS2 year (v. April)
- Addition of Phase 3 to support career development and transition to residency
- Holistic assessments

Unchanged:

- Focus on community, small group learning, and close faculty-student interactions
- Problem-Based Learning (PBL)
- Dedication to research, inquiry, and longitudinal, mentored research projects
- Four curricular domains
  - Basic science
  - Clinical science
  - Research
  - Health Systems Science and Interprofessionalism

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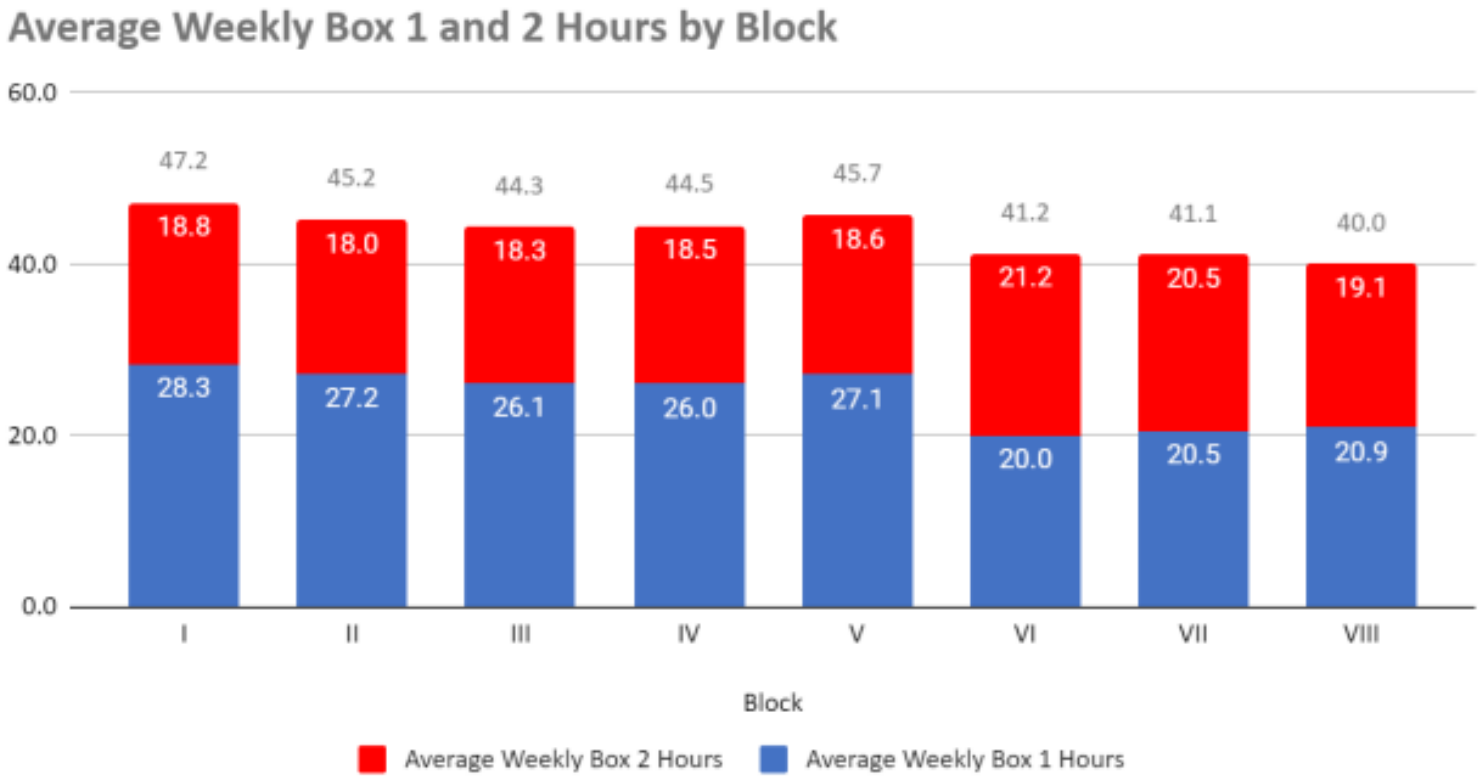
Continued Updates on Website:
https://medicine.vtc.vt.edu/academics/meded-curricular-modifications.html

#1: Three-Phase Model for the Curriculum

#2: Phase 1 Work Hours

- Trends in US medical education for hours per week
  - Promote independent and self-directed learning
  - ↑ citations for medical schools with higher work-hours per week
  - No “set standard,” but general expectation <22-24 hours per week IN CLASS



We were in ~95th% for Phase 1 length and weekly hours. The revised curriculum will help us reach learning and accreditation goals.

<u>Goal 22 hours per week.</u>

Note: The average weekly hours calculations per block excluded weekends, holidays, and assessment and special studies weeks.

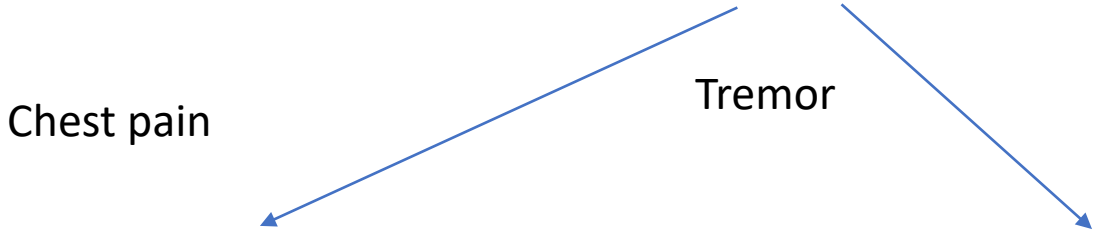
#3: Clinical Presentation Curriculum Model

- Discipline-Based Curriculum Model (1870s-)
  - Knowledge and fact based
  - Biochemistry, anatomy, bacteriology
- Organ-System-Based Curriculum Model (1950s-)
  - Originated out of the concern for a disjointed, and fact-based approach in the discipline-based model
  - E.g., pulmonary system (with multiple disciplines included – anatomy, physiology, biochemistry)
  - Struggles with integration in the minds of the learners
- Problem-Based Curriculum Model (1971-)
  - Originated out of the need to provide "contextual focal points" for learning and enhance problem-solving skills
  - Active learning within PBL enhances learning/retention and clinical reasoning
  - Struggles with reflexivity to related but dissimilar clinical problems (chest pain – MI vs PE)
  - Struggles with "forward approach" to reasoning – reasoning backward from a single hypothesis (opposite HDR)
- Clinical Presentation Curriculum Model (1991-)
  - Originated from the premise that clinical proficiency could be measured in context of clinical problems – how patients present
  - Focus on forward reasoning, knowledge-schema, and problem solving
  - Focus on interdigitation of contextually-based content and clinical behaviors

Our goals:

1. Blend PBL with the clinical presentation model.
2. Use VTCSOM 55 List of Clinical Presentations.
3. Create courses/titles that reflect desired integration → "biological systems."

Clinical Presentation Model: Engineered to be Patient-Focused



Core Concepts to Learn
Cerebral and spinal vasculature (anatomy, neuroscience)
Regulation of intracranial pressure and neuronal activity (neuroscience)
Adverse effects and toxicity of medications (pharmacology)
History and communication with patients and families (clinical science)
Cranial nerve examinations (clinical science)

Differential Diagnoses
Vertigo
Vestibular migraine
Inner ear infections
Hypoglycemia
Motion sickness
Dehydration
Meniere's disease

Anxiety

VTCSOM55 – Case Presentations:

Informed by health conditions encountered in Southwest Virginia

VTCSOM55 – Case Presentations

1. Abdominal pain*^
2. Abnormal vaginal bleeding^
3. Altered level of consciousness*^
4. Anxiety^
5. Arm and hand pain
6. Breast complaints*^
7. Chest pain*^
8. Confusion (altered mental status)*^
9. Cough*^
10. Delirium*^
11. Dementia*^
12. Depressed mood*^
13. Diarrhea*^
14. Diet disorders*^
15. Dizziness^
16. Dyspnea*^
17. Dysuria^
18. Ear pain^
19. Edema*^
20. Failure to Thrive
21. Fatigue^
22. Fever*^
23. Gait abnormalities*^
24. Gynecologic symptoms^
25. Headache*^
26. Hearing loss
27. Hematuria*^
28. Hematemesis
29. Hemoptysis*^
30. Inattention, hyperactivity, impulsivity^
31. Insomnia
32. Joint pain^
33. Leg pain
34. Low back pain^
35. Melena
36. Memory loss*
37. Muscle weakness*
38. Nausea/vomiting^
39. Night sweats^
40. Ocular disturbances*^
41. Oral health
42. Pelvic pain^
43. Rash ^
44. Red eye
45. Reproductive dysmorphology, development
46. Scrotal pain^
47. Shock
48. Shoulder pain*
49. Sore throat
50. Stroke*^
51. Syncope*^
52. Tinnitus^
53. Trauma*^
54. Tremor*^
55. Weight loss*

*ddx includes Top 15 Cause of Death (SW Virginia), Appalachian Diseases of Despair, and/or in Carilion's 2021 Roanoke Valley Community Health Assessment

^VTCSOM Year 3 Passport

#4: Holistic and Blended Assessment
(Competency-Based Medical Education)

Current Salient Features

- ~60% of course/clerkships = medical knowledge
- Mainly summative approach (and grades)
- In clinical settings, global assessments predominant

Future Salient Features

- Outcomes-based; competency-based
- Blend of formative and summative
- Growth focused, with coaching
- ↑↑ intentionally-developed assessments
- Goal: **balanced assessment program**
  - Coaching program
  - Use of narrative comments
  - Milestones
  - Portfolios
  - Longitudinal dashboards
  - Others

VTCSOM Educational Program Objectives and Subcompetencies

Domain 1: Patient Care

EPO1: Gathering Essential, Accurate Information
- SC1: Interview skills
- SC2: Physical and mental status examination

EPO2: Clinical and Diagnostic Reasoning
- SC3: Differential diagnosis

EPO3: Patient Management Plans
- SC4: Diagnostic tests and specialty consultations

Domain 3: Systems-Based Practice

EPO9: Systems Thinking
- SC12: Systems thinking

EPO10: Patient Safety and Quality Improvement
- SC13: Prevention of patient safety events
- SC14: Patient safety
- SC15: Disclosure of patient safety events
- SC16: Quality improvement

Competency Domain 5: Professionalism

EPO15: Professional Behavior and Ethical Principles
- SC29: Professionalism adaptations
- SC30: Ethical principles, practice, and solutions
- SC31: Responsible conduct of research

EPO16: Accountability/Conscientiousness
- SC32: Conscientious behaviors

EPO17: Self-Awareness and Help-seeking

	Level 1	Level 2	Level 3	Level 4	Level 5
SC27: Reflective Practice Incorporates reflective practice and individualized improvement plans as a commitment to personal growth and improve patient care.	Identifies the factors which contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors which contribute to gap(s) between expectations and actual performance Identifies and reflects on the element of personal responsibility for errors.	Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance Recognizes causes of lapses, such as fatigue, and modifies behavior or seeks help.	Challenges assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance	Coaches others on reflective practice Continually re-appraises one's own clinical reasoning to improve patient care

EPO14: Personal Growth and Reflective Practice
- SC26: Personal performance data
- SC27: Reflective practice
- SC28: Personal and professional learning plans

EPO21: Scientific Communication - Pts, Colleagues
- SC42: Communication of scientific evidence

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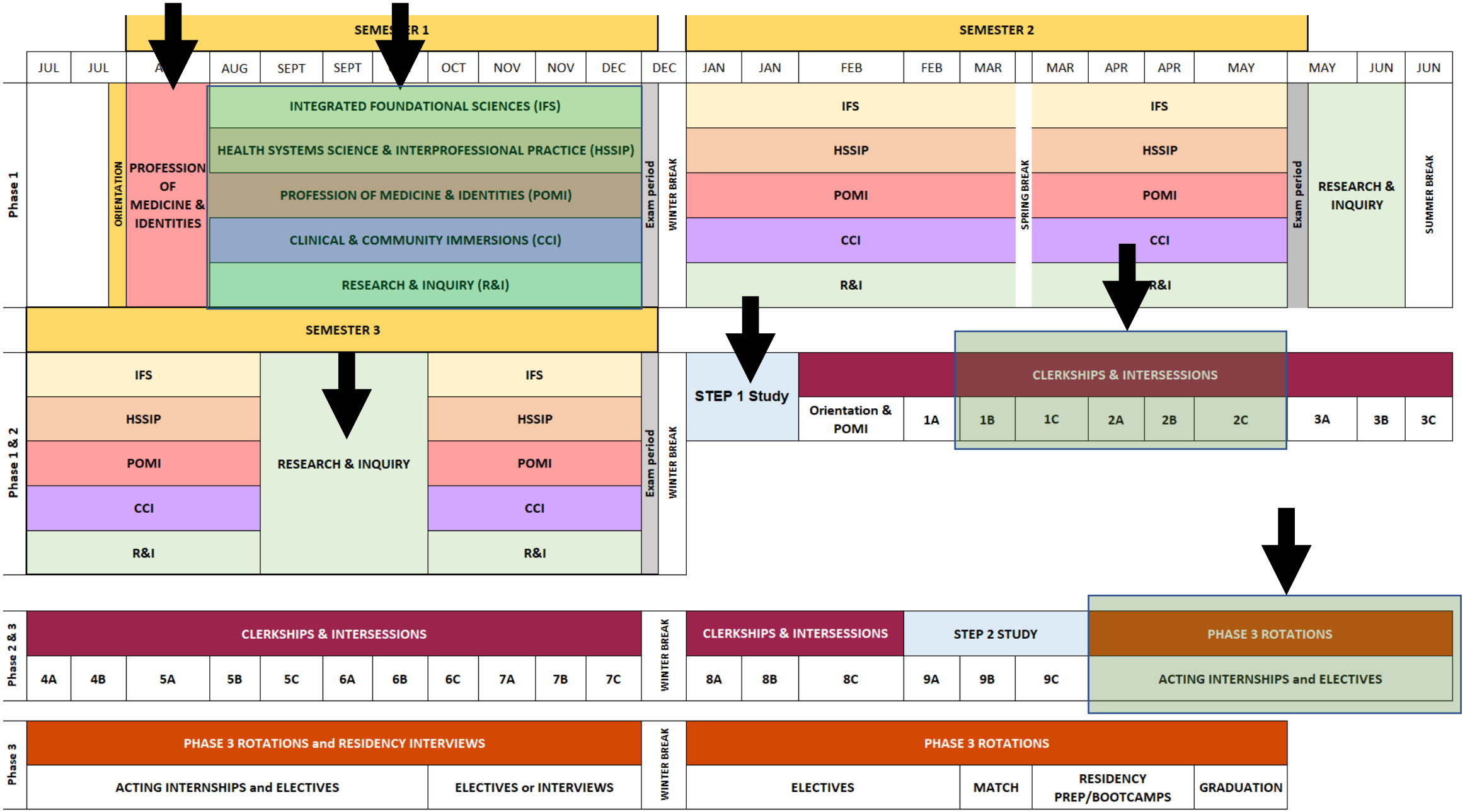
Curricular Schematics

Curricular Schematic

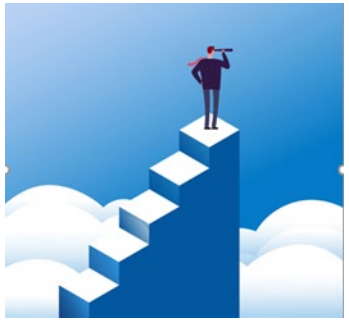


UNIT 1 WEEK 1

CASE PRESENTATION: Fatigue

	MON	TUES	WED	THURS	FRI
8:00 am	Problem-based Learning	Community & Clinical Immersions option*	Problem-based Learning	Integrated Foundational Sciences	
8:30 am					
9:00 am					Problem-based Learning
9:30 am					
10:00 am	Integrated Foundational Sciences		Research & Inquiry	Health Systems Science & Interprofessional Practice	
10:30 am					
11:00 am					Weekly Wrap-up
11:30 pm					
12 pm					
1:00 pm		Integrated Foundational Sciences	Community & Clinical Immersions option*	Community & Clinical Immersions option*	
1:30 pm					
2:00 pm					
2:30 pm					
3:00 pm					
3:30 pm					
4:00 pm					
4:30 pm					

*No more than one gray block/week. Not every week



Phase 2 and 3

Outcomes

Proximal Outcomes:
(1) Provide students with experiences that allow for skill development, (2) Provide students with learning experiences that optimize the transition into internship and residency.

Distal Outcome:
VTCSOM graduates who have the skills, knowledge, and attitudes necessary for superior functioning as a resident physician, specifically one who demonstrates the three of identities of the VTCOM mission of developing system citizens, scientist physicians, and lifelong master adaptive learners.

Priority Areas for Phase 2-3

Scheduling and Capacity
Optimizing curricular schedules, alignment of courses/clerkships with needs, and ensuring appropriate clinical capacity during VTCSOM growth.

Assessments, Grading, and Differentiation
Designing and implementing equitable assessments that increase VTCSOM's focus on clinical behaviors/skills, and identifying strategies for differentiation VTCSOM graduates.

Curricula and Programs
Designing and incorporating innovative curricula, engaging with VTC/CC partners, and creating a cohesive approach to learning.

Customized Learning and Development
Developing personalized curricula, incorporating flexible delivery methods, integrating residency-aligned skills, and ensuring robust support systems to enhance student engagement, competency, and career advancement.

CQI and Integration
Establishing a culture of quality, implementing data-driven decision-making, aligned learning and collaboration across Phases and between foundational and advanced courses, fostering effective teamwork and communication, and ensuring ongoing education and training, to reach proximal and distal outcomes at VTCSOM.

Educator and "Community of Practice" Identity
Fostering a culture of academic excellence in the education community of leaders to advance individual professional identity and raise the quality of outcomes at VTCSOM.

Operations and Logistics
Optimizing resource allocation, streamlining processes, and leveraging technology and communication to ensure achievement of desired outcomes and data analytics to improve efficiency and effectiveness.

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