**Gateway Curriculum Essentials**

9/4/2020

- **Our declaration of the future**: We are advancing human health as a diverse and inclusive community inspiring learners to create the future in medicine, science, and society.
- **Goal**: We will produce physicians who are leaders in medicine. Leaders in clinical care, science, education, and advocacy.
- The **primary guiding principles** for the renewal process are that the curriculum will be:
  - Competency-based and outcomes-oriented
  - Learning-centered
  - Integrated
  - Sustainable
- **Our values**:
  - Rigor
  - Care
  - Community
  - Collaboration
  - Inquiry & innovation
- The curriculum will consist of 3 phases over 4 calendar years.
  - Phase 1: Gateway to the Foundations
  - Phase 2: Gateway to Clinical Medicine
  - Phase 3: Gateway to Specialization
- **Phase 1 – Gateway to the Foundations** (16 months total):
  - Phase 1 will begin with a 1-week orientation/transition (**Gateway to the Curriculum**).
  - Then there will be 7 **Foundational Science Modules** of various length (**46 weeks total**).
    - In this context, “foundational sciences” is specifically and purposefully intended to imply the traditional basic sciences (e.g., anatomy, biochemistry, physiology, etc.) AND, including but not limited to, clinical skills, and **Physicians, Patients, Systems & Society content** (inclusive of professional identity formation, community engagement, social, behavioral and health systems sciences).
    - Each module will center on the functions (primary physiological organization) and forms (secondary anatomical organization) of the human body in an integrated fashion, including the basic and clinical sciences and the impact of the social and health systems sciences. The modules are:
      - **Molecules to Society**: An introduction to the individual experience to health and disease, highlighting the perspective from molecules to society (molecules → genes → cells → organs → organ systems → body → individual → society); blueprint/architecture of the human body, the different systems and their normal functions; introduction to the means by which the different parts of the body operate in harmony to maintain homeostatic conditions; overview of all curricular threads and the way in which they are integrated throughout all modules.
      - **Defense & Response to Injury**: Introduction to the pathologic mechanisms of disease, with a focus on infectious, autoimmune, and neoplastic mechanisms; specific topics included: host defense and innate and acquired immunity,
hemostasis, response to injury, microorganisms and responses to infection, regulation of cell growth and differentiation, neoplasm.

- **Breathing & Circulation**: The functions of circulation (perfusion, vascular compliance, cardiac conduction and contraction) and respiration (air movement and gas exchange, including the role of erythrocytes).
- **Ins & Outs**: The functions of nutrition, digestion, waste removal, and ionic balance.
- **Metabolism & Reproduction**: The functions of energy homeostasis and reproduction.
- **Scaffolding & Movement**: The peripheral nervous system innervation of skeletal muscles, allowing movement of the body; other structural components of the body, including tendons, bones, joints, and ligaments will be featured.
- **Brain & Behavior**: The functions of the central nervous system, including modulation of movement, somatosensation, consciousness, attention, sleep, speech/language, special senses, learning/memory, emotion, motivation, and reward.

- Each module will have a similar overall large-scale structure to facilitate consistency and familiarity.
- The large majority of instruction will occur in the mornings, Monday through Friday.
- Evidence-based active learning strategies and educational technology will be intentionally used whenever it substantively augments medical student engagement and learning. Likely examples would include:
  - Team-based learning
  - Cased-based collaborative learning
  - Flipped classroom strategies
  - Laboratories
- There will be three, 3-week **Clinical Immersions (9 weeks total)**.
  - Students will rotate through 3 clinical environments:
    - Inpatient
    - Outpatient, including urgent/emergent care
    - Perioperative/Periprocedural/Procedural (including Labor & Delivery)
  - These experiences will be meaningful, authentic, and consistent with the students’ level of experience.
  - Particular attention will be given to the clinical skills, the social and health systems sciences, and professional identity formation during these experiences.
- A **4-week immersive experience during Phase 1** will give students the opportunity to explore their interests early in training (see Explore below).
- Phase 1 will end with a **2-week Capstone** course to solidify and consolidate knowledge and skills and to further prepare students to perform successfully in the clinical clerkships.
- There will be 5 weeks of unscheduled time.

- **Phase 2 – Gateway to Clinical Medicine** (12 months total)
  - Six, 8-week **Clinical Clerkships**
    - Internal Medicine
    - Surgery
    - Pediatrics
- Obstetrics and Gynecology
- Neurology
- Psychiatry

Each clerkship will begin with 1 – 3 weeks of specialty-specific foundational science, consisting of purposeful reiteration and expansion of prior material (helical learning) and new material. This material will be taught in a signs and symptoms framework (i.e., patient presents with…) in order to facilitate core knowledge transfer to clinical reasoning.

Each clerkship will end with 1 week dedicated to assessment, reflection, coaching, and communities (ARCC).

Those students particularly interested in a career in science, the option will exist to complete 8 – 16 weeks of research beginning in January of Phase 2.

There will be 4 weeks of unscheduled time.

**MSTP students:**
- Will exit Phase 2 after completing one to two 8-week Clinical Clerkships and enter the PhD phase of their training.
- At the conclusion of PhD training MSTP students will return to Phase 2 and complete the remaining three to four 8-week Clinical Clerkships.
- May opt to take Step 1 during the initial months of the PhD phase or delay until after completing all 6 Clinical Clerkships.

**Phase 3 – Gateway to Specialization** (20 months total)
- Students will take the NBME USMLE Step 1 Examination during Phase 3, soon after completing Phase 2 (except MSTP students as noted above).
- Students will also take the NBME USMLE Step 2 CK and CS exams in Phase 3 on a more flexible schedule.
- Up to 8 weeks of credit-bearing study/preparation time will be available for the USMLE exams.
- All students’ schedules will be unique during Phase 3 (similar to the current 4th year) and tailored to their particular passions and career aspirations.
- All students will be required to complete a **4-week Internal Medicine Subinternship** sometime during Phase 3 (but prior to the last possible date for inclusion in the MSPE). The subinternship will be graded.
- All students will be required to complete **three 4-week Advanced Clinical Rotations** (ACRs) sometime during Phase 3 (2 prior to the last possible date for inclusion in the MSPE). The ACRs will be graded and include most other specialty subinternships. ACRs are also inclusive of subinternship-like experiences at other institutions.
- All students will be required to complete **three 4-week Keystone Integrated Science Courses** (KISCs) sometime during Phase 3. These courses will provide deep explorations into the science of a broad array of topics (basic, clinical, social, and health systems science), will ideally be transdisciplinary, and will take students from cell to society around an important or emerging area. Reasonable examples would include (accepting that none of these exist right now):
  - Precision medicine
  - Targeted-cancer therapies
  - The opioid crisis
  - The gut microbiome
- Artificial intelligence in medicine
- Gun violence
- The social determinants of health

- All students will be required to complete a 4-week Gateway to Residency (a.k.a. Capstone) Course early in their graduation year.
- By virtue of PhD training, MSTP students receive Phase 3 credit for:
  - One 4-week KISC
  - 16 weeks of research elective
- The remaining 8 months are entirely elective (essentially unchanged in comparison to the legacy curriculum 4th year).
- There is no limit on the amount of elective that can be dedicated to research activities (excepting MSTP students who have completed PhD training) and it is anticipated that the large majority of our students will do some form of research early in Phase 3 (as opposed to the summer between the current 1st and 2nd years).
- 4 weeks of university holiday time will occur during Phase 3 and students may elect to take up to 4 additional weeks of unscheduled time.

- **EXPLORE Curriculum**
  - An additional unique aspect of the Gateway Curriculum will be EXPLORE, which will provide students with longitudinal and immersive experiences in four specific academic career pathways: Research, Education, Advocacy, and Innovation.
  - Building on the outstanding opportunities that already exist for our students, the EXPLORE curriculum will provide enhanced structure and support for career development as an academic physician.
  - Students will have the opportunity to participate in longitudinal programming throughout the 4-year curriculum. This will include exposure to physician role models and mentors, core training in the knowledge and skills necessary for the respective career pathway, and experiential learning.
  - A 4-week immersive experience during Phase 1 will give students the opportunity to explore their interests early in training.
  - In Phase 2, students will have the ability to defer up to 16 weeks of clerkships in order to have a second early immersive experience.
  - Phase 3 will provide significant opportunities to explore career interests through electives, extended study, and yearlong and dual degree programs. Current programs include the MD/PhD, MSCI, MPHS, MPH and yearlong research programs. Additional dual degrees are being explored in collaboration with our Danforth-based colleagues.