

MICHIGAN STATE
UNIVERSITY

College of
Human Medicine

EVOLUTION OR REVOLUTION?

OUR SHARED DISCOVERY CURRICULUM IS HERE.



***“Tell Me and I Forget.
Teach Me and I Remember.
Involve Me and I Learn.”***

- Benjamin Franklin

After five years of research and countless hours of work by our faculty and administrators, the Michigan State University College of Human Medicine is implementing a dynamic new curriculum. It is a learning journey defined by involving students in uncovering the interplay of basic sciences and patient care. By exposing students to clinical experiences at the outset of medical school, they have a clinical scaffold upon which to attach their basic science knowledge. This is a radical change from how my colleagues and I were taught, as it removes the barrier between the teaching of the basic sciences and patient care. Specifically, beginning early in their first year, our students will be assigned to clinics, immersed in teams caring for patients and demonstrating how a deep understanding of the science enables the best in patient care.

The new curriculum also employs the very best in experiential learning including personal learning plans, learning societies, team based learning and simulation. We provide the students the tools to excel in lifelong learning, assuring that they will stay at the forefront of the ever advancing field of health care. Lastly, we place unparalleled emphasis on student wellness, recognizing that to train physicians that set the standard for patient and family centered care, their formative training must come in a culture of caring.

We call it the Shared Discovery Curriculum. As the new College of Human Medicine dean, I am excited to join my alma mater at such an important time, and I would like to thank Aron Sousa, MD, senior associate dean for academic affairs, and Dianne Wagner, MD, associate dean for undergraduate medical education, for their visionary leadership, as well as the entire team of faculty, staff and students who created the new curriculum. I invite you to look through this publication describing the new curriculum. I know you will agree that Michigan State University is once again leading the way in how we teach the doctors of tomorrow.



Norman J. Beauchamp Jr., MD, MHS
Dean, Michigan State University College of Human Medicine
November, 2016

INNOVATIVE APPROACH TO MEDICAL EDUCATION
SMALL AND LARGE GROUPS
SIMULATION AND LABORATORIES
ORGANIZATION AND DELIVERY
PROMOTE EXCELLENCE AND SUPPORT
RAPID RELIABLE RESPONSIVE
DIFFERENT PURPOSES
MAKING THE PATIENT THE FOCUS
TECHNOLOGY AND HUMAN TOUCH
KNOWLEDGE AND SKILLS
COMMITMENT TO DIVERSITY
ATTAINABLE AND ASPIRATIONAL
MEDICAL STUDENTS AND MASTER TEACHERS
BIOPSYCHOSOCIAL MODEL
COMMUNITY-BASED CARE
BASIC SCIENTISTS AND SOCIAL SCIENTISTS
BIOETHICISTS AND PHYSICIANS
STUDY, DISCOURSE AND TESTING
IMPROVE PUBLIC HEALTH
TRUE TO OUR VALUES
IMPROVE THE MEDICAL SCHOOL EXPERIENCE
FOUR LEARNING SOCIETIES
OUR HOPES AND DREAMS
THE FOREFRONT OF NATIONAL EFFORTS
CONTINUOUS IMPROVEMENT
REGULAR FEEDBACK
ADVANCED SKILLS AND KNOWLEDGE
PROGRESS ASSESSMENT FEEDBACK
STRUCTURE AND ORGANIZATION
EARLY PREPARATION FOR CLINICAL WORK

3 PROLOGUE
A letter from Aron Sousa, MD, Senior Associate Dean for Academic Affairs

9 CONTEXT AND PRINCIPLES
An innovative response to educational imperatives.

17 OVERVIEW
Structure and organization of the curriculum.

25 THE ACADEMY
Home of students and faculty.

39 JustInTimeMedicine®
Rapid. Reliable. Responsive.

45 PROGRESS ASSESSMENTS
Frequent feedback. Continuous improvement.

49 EARLY CLINICAL EXPERIENCE (ECE)
Preparation for clinical work.

55 INTERSESSIONS
Consolidate and strengthen student performance.

61 MIDDLE CLINICAL EXPERIENCE (MCE)
Emphasize integration.

67 LATE CLINICAL EXPERIENCE (LCE)
Engaged in disciplinary clerkships.

71 FOUR YEARS OF MEDICAL SCHOOL
A week-by-week guide through the curriculum.

75 A RADICAL NEW CURRICULUM
Our hopes and dreams. Realized.



PROLOGUE

This is a very different curriculum. The first two years of medical school have a grand total of five classes and the content follows patient symptoms and concerns rather than disciplines or organ systems. We focus on the patient first and molecules later. From the first semester, the students' schedule is determined by their clinical work rather than their tests, and we use only progress testing. After the first six weeks our content is sequenced by what students are likely to see in clinic rather than organ system or basic science discipline, and our learning societies are the setting for content and not just clinical skills or professionalization. In short, we take the best of medical education and push it to all four years of the curriculum.

Education always seems to be in revolt or threatening revolution; whether the challenge is technological or generational, something in education is always threatening to change the world forever. Our time is no different. Quality medical education content is freely available all over the world, and the era of the droning professor at an 8 a.m. or 4 p.m. lecture is all but over. Our curriculum, while embracing the changes in technology, focuses on the fundamental core of education. There is still a place for faculty to prioritize and present content, but the main roles of faculty that cannot be outsourced to technology are 1) the student-faculty relationship and 2) certification of competence/excellence. The Shared Discovery Curriculum (SDC) focuses on these two sustaining roles of a medical school and frees faculty from timed content delivery that is more standardized and convenient on a computer.

As my colleagues and I considered creating a new curriculum, we thought back to our most rewarding educational experiences. All of those experiences involved either a faculty member or a practical experience or both. With that simple lesson from countless hours of medical school and graduate school classes, we set out to create as many rewarding educational experiences for our students as we possibly could:

- We made meaningful clinical experiences the focus of each year of the curriculum.
- We created post clinic groups where students and faculty integrate clinical experiences with necessary science and humanities as the core educational meetings of the students' week.
- We focused our assessments on guiding students toward excellence and competence rather than hammering them with two tests a week.
- We tried to design some joy into medical school.
- We did a pilot test.

In a summer pilot test the college picked an academically and socially diverse group of 21 students split between the entering class and the end first-year class, and we ran them through the first weeks of our proposed Early Clinical Experience. It turns out that the people we admit to medical school are highly capable people, who deserve better than the first two years of a traditional medical school curriculum. Based on the reviews from our clinics, the pilot students were fundamentally useful in clinic. I've never had a clinical affairs dean ask for more students, but after the pilot test the clinics wanted more students. Importantly, by the end of the



pilot test the students, regardless of pre-matriculation or first-year status, did as well as our legacy students on standardized patient cases and on practice board questions for the covered topics.

None of this should have been a great surprise to me. I've spent the last few years reading and thinking about Jane Addams and John Dewey; they would have predicted that highly experiential education would be more effective than a traditional pre-clinical curriculum. At the turn of the previous century, Addams helped found the American Settlement house movement, the field of social work, and Hull House in South Chicago. Importantly for our project, she broke new ground on adult education, particularly for immigrants. Dewey visited Hull House and applied the work of Addams more generally to education. It is possible to apply the work of these two highly practical philosophers to much of medicine and medical school, but we focused on a few key concepts:

- It is very useful to tie theoretical learning to hands-on experiences. Addams taught English to immigrants through vocational training; we teach the language of medicine through clinical experiences rather than theory-based course work.
- Knowledge is not separable from our measurement of knowledge. We only measure knowledge in terms of performance, for example answering questions or using information to solve a problem. The SDC explicitly moves our assessments toward real world objectives like answering patient questions or passing board exams rather than focusing on remembering course content.
- Content and experiences should be oriented to the needs of the student not the thought process of faculty. Many traditional courses are organized using a retrospective fallacy. Faculty tend to organize and simplify content with the most molecular basic science first and then “build” an explanation for larger organismal function. No curious child or curious scientist learns (or discovers the world) that way. We discover by engaging in the world and then digging down into the subject. Our content is structured first by patient experience and then digging down into humanities or necessary science that underlies what we see in people. Our curriculum is organized by the patient's Chief Complaint and Concern rather than by discipline or organ system. Our students will engage with the science underlying shortness of breath based on the patient experience rather than divide dyspnea into cardiac, pulmonary, hematologic, neurologic, and other causes that the student only later integrates on the wards, or doesn't.

While we all hoped the pilot test would be a good experience for the students, we did not realize how much it would enrich the teaching experience for the faculty. In the pilot test, faculty saw the students work in the domains of clinical work, basic science, social science, and the humanities, which is a broader and deeper educational relationship than in traditional curricula. And, faculty worked together with students to improve their own knowledge in ways that do not happen within the traditional curriculum. It was joyful and rewarding. In short, we inadvertently discovered the value of learning societies focused on academic achievement. Curricula are always created with students in mind, but we hope our learning societies (the Academy) help provide faculty with an exciting and rewarding teaching experience.

This publication describes the major features of the Shared Discovery Curriculum. Some are new to medical education like JustInTimeMedicine® and the structure of the Early, Middle and Late clinical experiences, while the Learning Societies and Chief Complaints and Concerns are older ideas used in unusual ways. We use progress testing to assess student competence and excellence as well as guide the student's next learning goals.

Our Shared Discovery Curriculum is focused on the experiences of students and faculty together. We learn from each other. We believe the Shared Discovery Curriculum will one day become part of the national medical education landscape. Our students will learn in ways many of us did in residency or in the laboratory. While development of this curriculum has been time-consuming and challenging, we believe the Shared Discovery Curriculum will provide a better learning experience for students and faculty while training students to a higher level faster than a traditional curriculum. I hope you find the outline of the curriculum useful and informative.

Sincerely,



Aron Sousa, MD
Senior Associate Dean for Academic Affairs
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CONTEXT

PRINCIPLES

EVOLUTION OR REVOLUTION?

Our health care systems are in the midst of great change. Students, residents, and practicing physicians need radically different knowledge and skills than they did in the past. Traditional curricula do not deliver these efficiently.



ENTER THE SHARED DISCOVERY CURRICULUM.

The Shared Discovery Curriculum represents a radical departure from present educational models, emphasizing usefulness and experience as a framework for adult education.

Featuring the blending of curriculum content and clinical experience, and in explicit distinction to the traditional medical education of the last 100 years, we create a community-focused medical school experience responsive to the health care needs of Michigan and the country — and in the educational best interests of diverse learners.

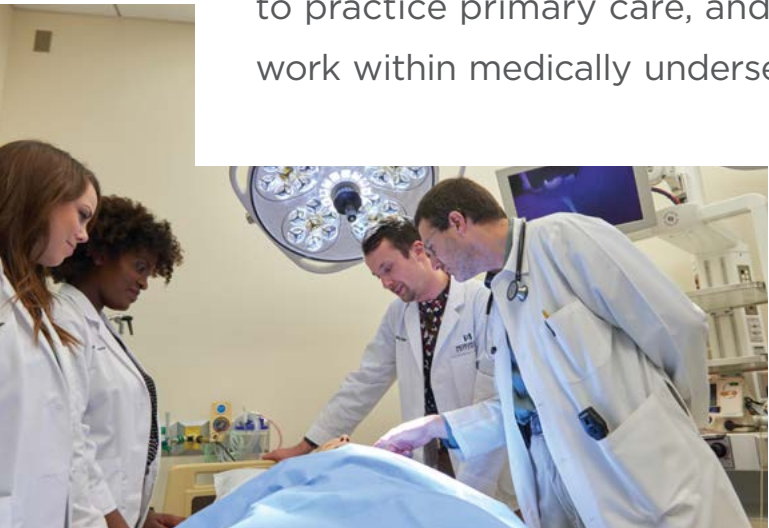
The Shared Discovery Curriculum moves us beyond the traditional division of pre-clinical and clinical experiences, large lectures and disciplinary divisions.

The guiding mission of our Shared Discovery Curriculum is to nurture, educate and graduate students who are ready, willing and able to be exemplary new residents and practicing physicians.





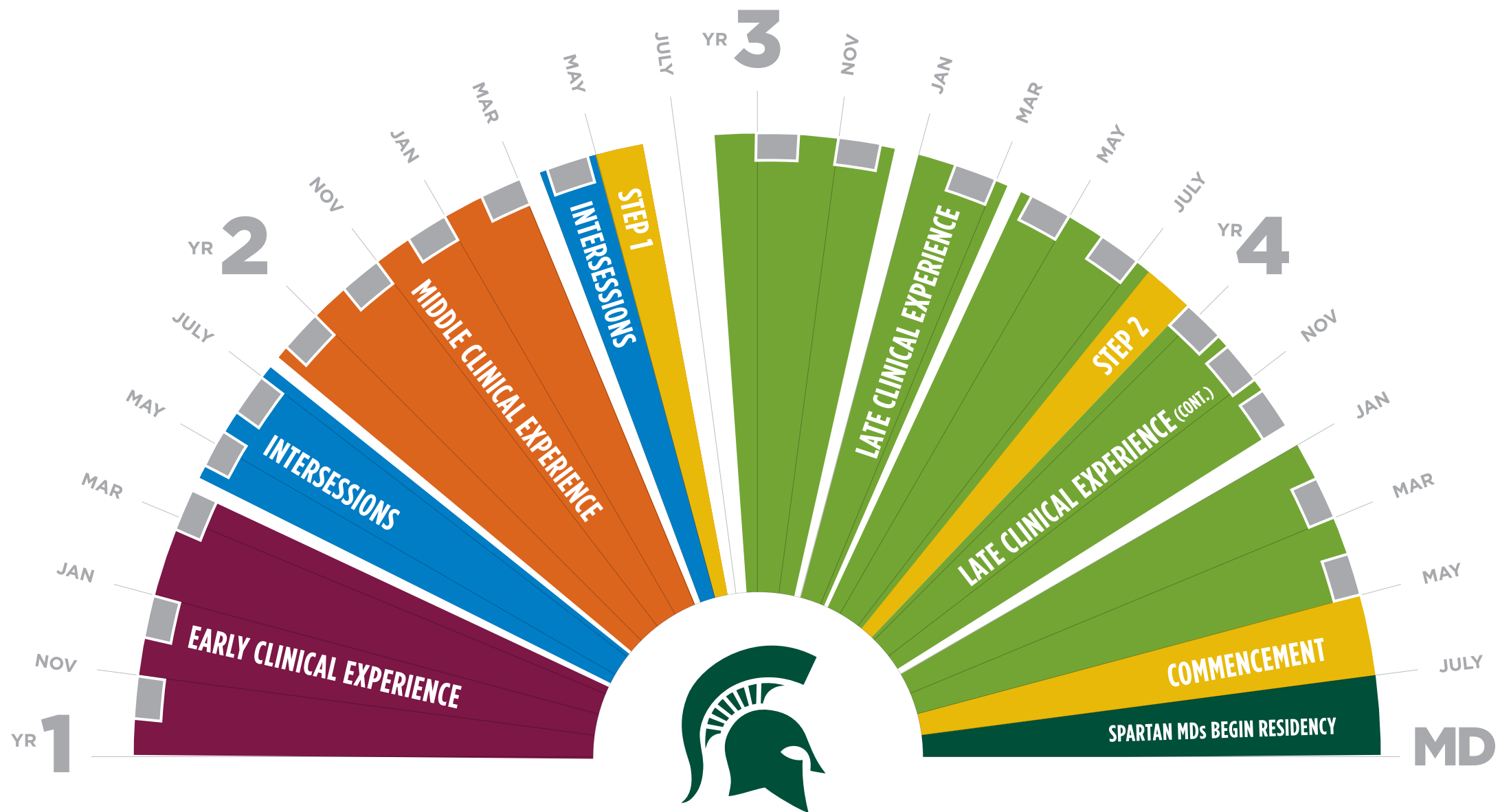
Michigan State University College of Human Medicine is a community-based medical school with a legacy of innovative responses to educational imperatives. The college was among the first in the nation to train medical students within communities. At present, our learners are educated on seven campuses that span the entire state. We pioneered the development of “focal problems” (a precursor of problem-based learning) as a guiding educational strategy. The college has been cited as a leader in the social mission of medical schools. This reflects our continuing contribution to physician workforce diversity, the percentage of graduates who move on to practice primary care, and those who work within medically underserved areas.



GUIDING PRINCIPLES FOR THE CURRICULUM

- Student-centered learning
- Early and ongoing clinical experience for students
- Integrated basic and clinical sciences throughout the curriculum
- Biopsychosocial model for patient care
- Collaborative learning for faculty and students
- Technology-enhanced curriculum and assessment
- Alignment of evaluations with curricular content and real-world performance
- Assuring competence and striving for excellence

FOUR YEARS AT A GLANCE.



CLINICAL EXPERIENCES

The curriculum is organized around three major clinical experiences. The Early Clinical Experience (**ECE**) places students in ambulatory settings learning with medical assistants, nurses, and physicians. The Middle Clinical Experience (**MCE**) places students in ambulatory and inpatient environments with residents and attending physicians, but also with respiratory therapists, social workers, nutritionists, pharmacists and nurses. The Late Clinical Experience (**LCE**) places students in ambulatory and inpatient settings on disciplinary services, now equipped to take on more responsibility and to realistically prepare for the first day of residency training.

INTERSESSIONS

Between the ECE and the MCE, and between the MCE and the USMLE Step 1 examination, there are a series of four-week **Interseptions**. These provide an opportunity for students to refocus on challenging areas of the curriculum, expand on areas of strength or pursue their interests and goals.

PROGRESS ASSESSMENTS

A suite of **progress assessments** enables students and their faculty to verify learners' achievement of competence and readiness to advance. The components of the progress assessment are carefully aligned with our SCRIPT competencies, testing medical knowledge, skills and real world behaviors.



MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

OVERVIEW



EDUCATIONAL COMPETENCIES: SCRIPT

In 2005, the College of Human Medicine organized its curriculum around a core group of competencies based on the residency competencies adopted by the Accreditation Council for Graduate Medical Education (ACGME).

The college did not simply adopt the ACGME competencies but “made them MSU Green” by adding additional competencies (for example, service) and re-organizing other competencies to better fit the college’s mission. The college will continue to use SCRIPT as the competency structure of the new curriculum.

S

SERVICE

- Participates in the provision of beneficial services within the community
- Demonstrates preparation and planning to provide services which respond to community need
- Demonstrates reflection on their participation in service activities

I

INTEGRATION

Systems-Based Practice

- Demonstrates awareness of cost and access issues in the formulation of patient care plans
- Demonstrates respect for all members of the health care team
- Demonstrates understanding of and contributes to a culture of safety
- Demonstrates knowledge of differing types of medical practice and delivery systems and their implications for controlling health care allocation and cost
- Demonstrates knowledge of how social and economic systems in which people live impact health, delivery of health care, and well-being

C

CARE OF PATIENTS

Patient Care and Interpersonal and Communication Skills

- Demonstrates kindness and compassion to patients and their families
- Collects complete and accurate patient data
- Synthesizes patient and laboratory data to formulate reasonable assessments and plans
- Demonstrates the incorporation of patient values into illness assessment and care plans
- Communicates effectively in writing and orally
- Effectively counsels and educates patients and their families

P

PROFESSIONALISM

- Demonstrates receptiveness to feedback from faculty/peers/colleagues/team members
- Contributes actively to group/team process
- Demonstrates respect to patients, colleagues and team members
- Fulfills responsibilities in courses and on clinical rotations
- Takes responsibility for patient outcomes and is accountable to the team, the system of delivery, the patient, and the greater public

R

RATIONALITY

Practice-Based Learning and Improvement

- Identifies personal strengths and weaknesses and develops ongoing personal learning plans
- Demonstrates receptiveness to faculty and peer/colleague feedback as a means of facilitating personal and professional improvement
- Locates, appraises and assimilates evidence from scientific studies related to their patients' health problems

T

TRANSFORMATION

Medical Knowledge

- Applies essential basic, social, clinical science and systems knowledge in the care of patients
- Creates new knowledge through research
- Participates in lifelong teaching and learning with peers, trainees, and patients



**Complaints &
Concerns**

**History,
Physical Exam,
Diagnosis &
Treatment**

**Necessary
Science**

**Complexities
& Controversies**

CHIEF COMPLAINTS AND CONCERNS.

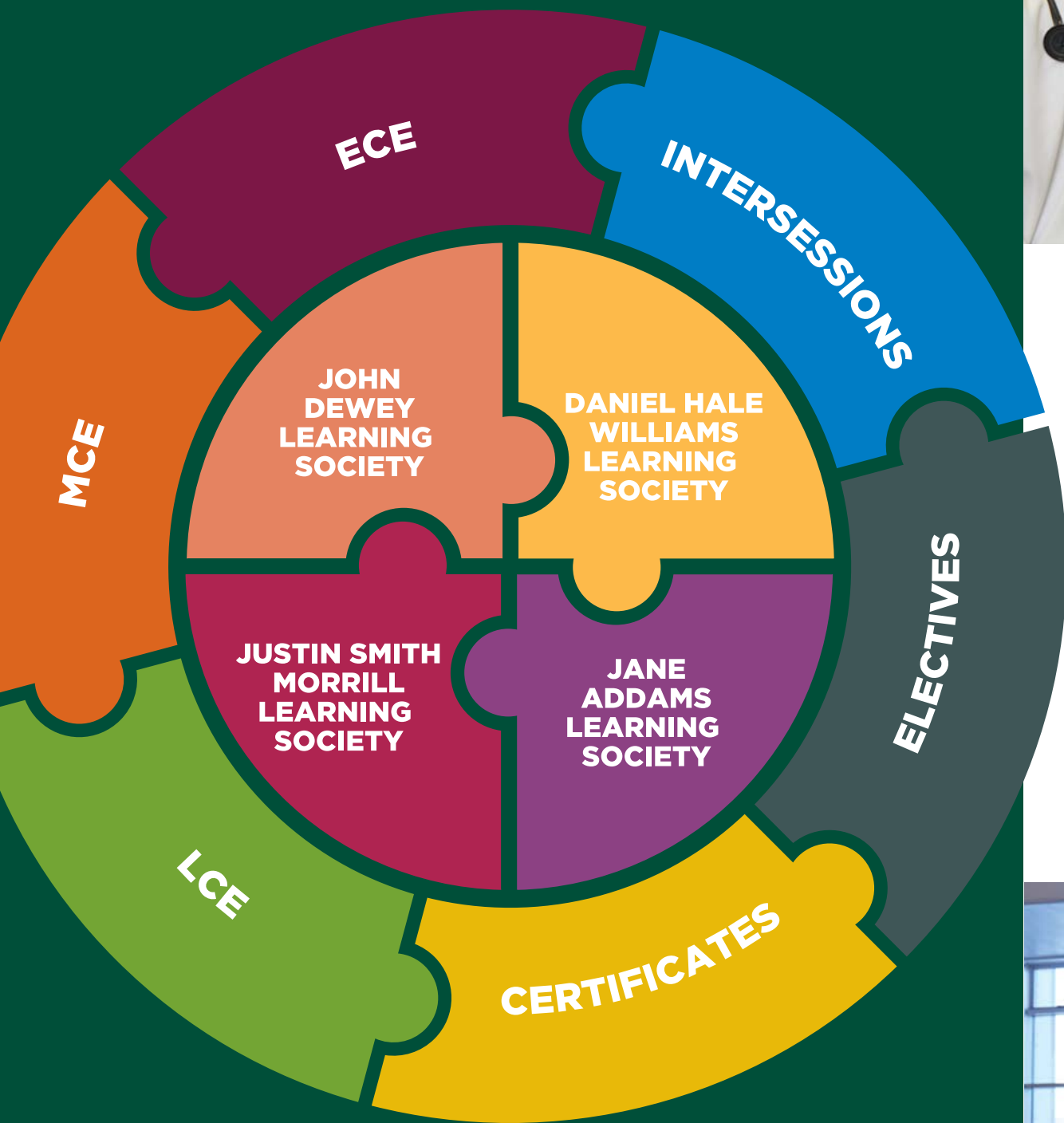
The novel structure and organization of the Shared Discovery Curriculum have required a new system of identifying and presenting the content and objectives for the college. As such, the college faculty has identified a group of Chief Complaints and Concerns (C3) based on international lists of core objectives and patient presentations.

Rather than the disciplinary (biochemistry, immunology) or organ system (cardiovascular or neurologic) classifications typically employed in medical education, the Chief Complaints and Concerns documents are focused on patients' complaints or physicians' concerns (e.g. shortness of breath or elevated blood sugar). The knowledge and skills to care for these patients define the end competencies of our medical school curriculum. The College of Human Medicine faculty have created the end-competency objectives for each of the Chief Complaints and Concerns by defining, for each topic, what an exemplary new resident should know and be able to do for a patient presenting in that manner. The process of bringing faculty together to carefully define these competencies has been a unique aspect of our curricular renewal process as well as a rigorous and intellectually stimulating one.



MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

THE ACADEMY



THE ACADEMY IS HOME



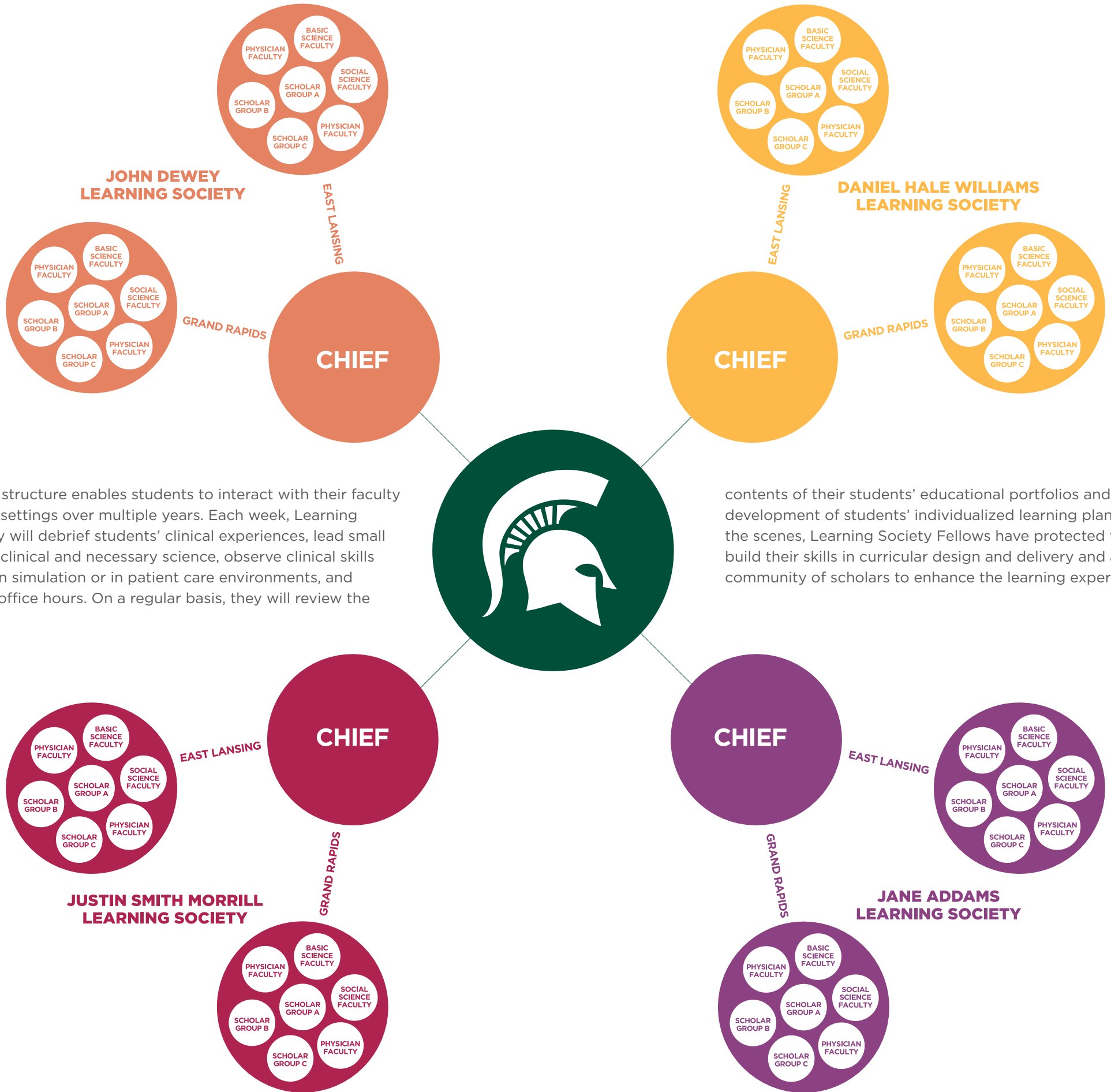
At the core of the Shared Discovery Curriculum is the Academy, comprised of four Learning Societies of medical students and master teachers, exploring the curriculum in small and large groups, simulation and laboratories.

The four Learning Societies include basic scientists, social scientists, bioethicists and physicians. The Academy is designed to organize and deliver several components of the curriculum, including post-clinic debriefing, problem-based learning and other small group learning experiences, student portfolio review and individual personal learning plan coaching. It also enables the delivery of specialized faculty development to promote both excellence in teaching and coaching, as well as ongoing support of scholarly endeavors.

LEARNING SOCIETIES WITHIN THE ACADEMY ARE AN INTEGRAL PART OF EVERY ASPECT OF THE SHARED DISCOVERY CURRICULUM.

The Academy fosters longitudinal trusting relationships and a rich collegial environment for students and fellows. It facilitates ongoing mentoring and scholarly collaboration.





The Academy structure enables students to interact with their faculty in a variety of settings over multiple years. Each week, Learning Society faculty will debrief students' clinical experiences, lead small groups, teach clinical and necessary science, observe clinical skills performance in simulation or in patient care environments, and hold informal office hours. On a regular basis, they will review the

contents of their students' educational portfolios and guide the development of students' individualized learning plans. Behind the scenes, Learning Society Fellows have protected time to build their skills in curricular design and delivery and act as a community of scholars to enhance the learning experience for all.



DANIEL HALE WILLIAMS

Daniel Hale Williams (Jan. 18, 1856 – Aug. 4, 1931), an African-American surgeon and hospital founder, was born in Holliday, Pa., and went to school there and in Annapolis and Baltimore. After his father died, he moved to Janesville, Wisc., where, at the age of 17, he began his first careers as a barber and bass violinist. Later he worked in a law office but found the atmosphere too contentious. In 1878, with the sponsorship of a prominent physician in Janesville, he began his medical studies and received his M.D. from the Chicago Medical College in 1883. Following an

internship, he became the surgeon at Chicago's South Side Dispensary, where he treated African-American and white patients.

After learning of the difficulty that African-American women had getting into nursing school, Williams founded a hospital and a nursing school for women of color, securing financial assistance from African-American and white benefactors. In May of 1891, Provident Hospital opened with 12 beds and seven students in its first nursing class, from 175 applicants. With African-American and white physicians, staff and board members, it was the first black community hospital in the U.S., providing education for black doctors and nurses and care for all patients. Williams recruited his attending physicians and surgeons from Rush Medical College and his alma mater. Provident Hospital soon became overcrowded, and, with additional financial support, a new 65-bed building opened in 1896.

In 1894 Williams was appointed chief surgeon at Freedmen's Hospital in Washington, DC, where he again instituted many changes, including the

founding of a nursing school. Reorganizing the staff without regard to race, he developed an internship program and improved the hospital's ties with the Howard University medical school. While at Freedmen's, Williams was a founder of the National Medical Association, the only professional association then open to African-American physicians. In 1898 he resigned his position at Freedmen's and returned to Chicago, where he saw patients in five Chicago-area hospitals and was an attending surgeon at St. Luke's Hospital, the largest and wealthiest in Chicago.

In 1913 Williams became the first African-American surgeon nominated as a charter member of the American College of Surgeons. In 1893 he performed the first successful operation on the pericardium. In 1902 he successfully sutured a heavily bleeding spleen, another first in the U.S. By 1901 Williams had operated on 357 ovarian cysts in African-American and white women, a condition previously believed to occur only in white women.

In 1900 Williams became a visiting clinical professor of surgery at Meharry Medical College in Nashville, Tenn., and for the next 25 years provided much-needed training for African-American surgeons in the South.

In 1920 he and his wife moved to Idlewild, Mich., where he died on August 4, 1931.

Beatty, William K. (1999). "Williams, Daniel Hale." In: John A. Garraty & Mark C. Carnes (Eds.), *American national biography*, Vol. 23, pp 444-446. New York: Oxford University Press.

Byers, Paula Kay & Bourgojn, Suzanne Michele (Eds.) (1997). *Encyclopedia of World Biography*. Vol. 16, 2nd ed., pp 302-303. Detroit: Gale, 2004. p182.

Photo: Daniel Hale Williams, c. 1900. Public Domain. <http://web.archive.org/web/20030804040235/http://www.chicagohistory.org/DGBPhotoEssay/DGB06.html>



JANE ADDAMS

Jane Addams (Sept. 6, 1860 – May 21, 1935), born into the wealthiest family in Cedarville, Ill., was a social reformer and pacifist. Her father was a businessman, banker and philanthropist with a sense of civic responsibility. Her mother died when Addams was 3 years old, and five years later her father married a widow who was interested in the fine arts and culture. Between her father and stepmother, Addams became aware of individual rights, civic duty and the belief that Christian ethics and the arts were necessary for a successful life.

She entered Rockford Female Seminary in 1877, where she was

class president all four years, school newspaper editor and valedictorian. Her interest in science led her to the Women's Medical College in Philadelphia, but she abandoned her studies to undergo spinal surgery. Addams fell into depression during her convalescence and, at the suggestion of her stepmother, toured Europe for more than two years. Upon her return she did charity work in Baltimore, but struggled to find a purpose that would engage her intellect and her knowledge of the fine arts. During a second trip to Europe, she became acquainted with Toynbee Hall, an influential settlement house in London, which inspired her to open Hull House in 1889 in Chicago. Hull House, often cited as one of her most noteworthy accomplishments, became the most famous and inventive settlement house in the country, encompassing 13 buildings and a community playground.

Addams envisioned it as a place where educated women could help young working and poor women develop cultural interests, but the poverty around Hull House soon motivated her to provide social

services to the residents, including day care, visiting nurses, legal aid, a boys club, a home for working girls and English classes for immigrants seeking citizenship. Considered by many to be a keen social theorist and an expert on social problems, Addams was a frequent lecturer and wrote articles and books advocating social reforms. She believed true democracy was threatened by urban industrialization and worked to bring about a democracy that insured the welfare of all. She was involved in politics, education, labor negotiations, women's rights and world peace. Addams served on the Chicago Board of Education and founded organizations that lobbied for vocational education funding and strong child labor laws.

Addams was the first woman president of the National Conference of Social Work, vice president of a national suffrage association and a founding member of the NAACP. She became involved in many labor disputes, believing that conciliation was the answer to conflict, which also reflected her pacifism during World War I. She received the Nobel Peace Prize in 1931 for her efforts to bring about world peace. British labor leader John Burns called her "the only saint that America ever produced."

Brown, Victoria Bissell. (1999). "Addams, Jane." In: John A. Garraty & Mark C. Carnes (Eds.), *American national biography*, Vol. 1, pp 139-141. New York: Oxford University Press.

Byers, Paula Kay & Bourgojn, Suzanne Michele (Eds.) (1997). *Encyclopedia of world biography*, Vol. 1, pp 56-57. Detroit: Gale.

Frederick, Richard G. (2008). Jane Addams. In: Robert. F. Gorman (Ed.), *Great lives in history. The 20th century, 1900-2000*. Vol. 1, pp 22-25.

<https://www.thenation.com/article/notes-capital-jane-addams/>

Photo: Sociologist, suffragette, social worker, philosopher, and Nobel Peace Prize winner Jane Addams, in 1924 or 1926. Source: George Grantham Bain collection at the Library of Congress. https://en.wikipedia.org/wiki/Jane_Addams#/media/File:Jane_Addams_-_Bain_News_Service.jpg



JOHN DEWEY

John Dewey (Oct. 20, 1859 – June 1, 1952), an educational philosopher and professor, was born in Burlington, Vt., the son of a shopkeeper. He enrolled at the University of Vermont in 1875, and became familiar with evolution, social philosophy and other progressive thinking. He taught high school for several years before enrolling in the Johns Hopkins University graduate school, where he studied logic, philosophy and psychology and received his Ph.D. in 1884. He was recruited by the University of Michigan and in 1894 moved to the University of Chicago as head of the philosophy

department. During his time at Michigan and Chicago, Dewey developed an interest in social issues, and became friendly with the reformers of Hull House, including Jane Addams.

Dewey's philosophy combined idealism and experimental psychology. Influenced by the "pragmatism" of William James, he created the concept of "instrumentalism," which held that thoughts and ideas, as products of personal experience, were the ways humans resolved the problems encountered in their environment. He did not accept the dualism of mind and body but rather that the mind itself, like the body, evolved through interaction with the environment.

Instrumentalism also defined his philosophy of education. Dewey rejected the style of teaching at the time, which emphasized lectures, memorization and repetitive instruction. He favored learning through action, and believed students do best through experience and active engagement with the curriculum. "Learning by doing" has influenced teaching in America ever since.

Dewey was an advocate for democracy and believed education was the best way to counteract the disparity of wealth brought about by industrialization. He was not against technological advances but felt that science and technology could be beneficial for all. At Chicago he and his wife established the "Laboratory School," where his ideas of progressive education were applied and tested. He resigned over a misunderstanding with the administration at the University of Chicago and was hired by Columbia University as a professor of philosophy and later held a joint position in the Teacher's College. He retired in 1939.

Dewey continued to write and lecture and remained influential in the major issues of the day, particularly during the 1930s and World War II. He published more than 40 books and 700 articles and was considered by many to be "America's national philosopher." His professional activities included terms as president of the American Psychological Association and the American Philosophical Association. Dewey was a founder of the American Civil Liberties Union and the American Association of University Professors.

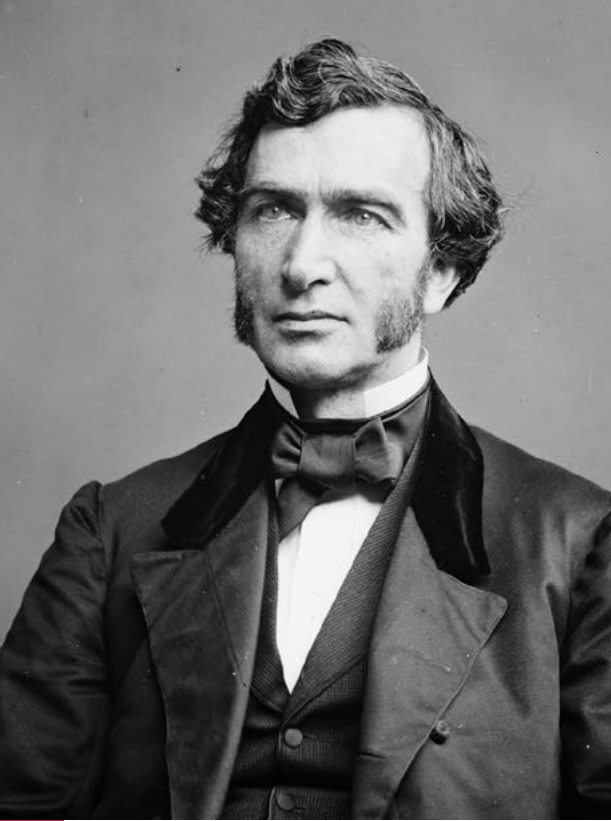
He was preparing a new edition of one of his major titles at the time of his death in 1952.

Beatty, William K. (1999). "Dewey, John." In: John A. Garraty & Mark C. Carnes (Eds.), *American national biography*, Vol. 6, pp 514-518. New York: Oxford University Press.

Byers, Paula Kay & Bourgojn, Suzanne Michele (Eds.) (1997). *Encyclopedia of world biography*, Vol. 4, pp 520-523. Detroit: Gale.

Pickens, Donald K. (2008) John Dewey. In: Robert. F. Gorman (Ed.), *Great lives in history. The 20th century, 1900-2000*. Vol. III, pp 928-984.

Photo Source: Public Domain. Underwood & Underwood - United States Library of Congress, Prints and Photographs division. Digital ID cph.3a51565.



JUSTIN SMITH MORRILL

Justin Smith Morrill (April 14, 1810 – Dec. 28, 1898) was a politician, legislator and businessman. He was born in Stafford, Vt. His father, a blacksmith, could not afford college for his sons. Morrill attended public school until his early teens when he became a clerk in the local general store. After four years he moved to Portland, Maine, working as a bookkeeper in a dry goods store. He returned to Stafford in 1834 and partnered with a local merchant. Fifteen years later, Morrill was financially able to leave his work in retail and retire to a farm.

Through his success as a businessman, he was recognized as a leading citizen, allowing him to become active in local and state politics. Morrill became a member of the Whig party. He repeatedly refused offers to be an elected official but in 1854 accepted the Whig nomination for Congress. He won that election and began a 44-year career, first as a representative and later as a senator. With the collapse of the Whig party in 1855, Morrill became a founder of the Republican Party in Vermont. As a politician, he was known for his practical and commonsense approach to legislation. He was a moderate and an abolitionist.

Unable to afford college himself, Morrill was an advocate for higher education. Concerned that there were no schools of agriculture in the U.S. as in Europe, and only a few that taught mechanical engineering, Morrill championed using public land and a fund that all states could

share to teach these subjects. In July of 1862 the Morrill Land Grant Act, the only legislation bearing his name, passed Congress and was signed by President Abraham Lincoln. As a result, 105 institutions of higher education eventually were funded to provide education for America's working class in agriculture, business, engineering, mechanics and home economics. To ensure more federal funding for land grant schools, he then introduced legislation guaranteeing annual federal monies for these colleges.

Michigan State University was founded in 1855, and, with the passage of the Morrill Land Grant Act, became the nation's first land grant college and a prototype for 69 subsequent land grant universities. Originally the Agricultural College of the State of Michigan, it was among the first U.S. colleges to teach a scientific approach to agriculture. Following passage of the Morrill Act, it became a coeducational college and broadened studies in agriculture and other areas. Today, MSU is the 8th largest university in the country based on enrollment.

After one of the longest and most productive careers in Congress, Morrill died on Dec. 28, 1898, in Washington, DC.

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Photo: Hon. J.S. Morrill. Source: Mathew Brady - Library of Congress Prints and Photographs Division. Brady-Handy Photograph Collection. LC-BH82- 4787 <http://hdl.loc.gov/loc.pnp/cwppbh.01802>



Log On

Regis

Just In Time Medicine

Assessments

Logs

Curriculum

Abdominal aortic aneurysm

Author

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MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

JustInTimeMedicine[©]

Updated

October 13, 2014



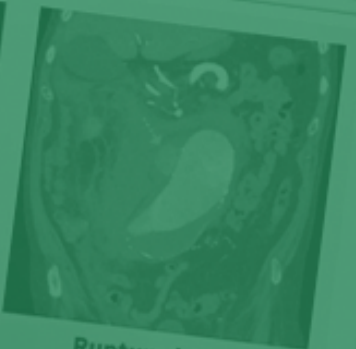
AAA Angiography



AAA CT Scan



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Ruptured AAA

▼ SUMMARY

- Balloon-like dilatation of a segment of the abdominal aorta with an aortic diameter of > 3.0 cm. 80% of AAA occurs between the renal arteries and the iliac bifurcation.

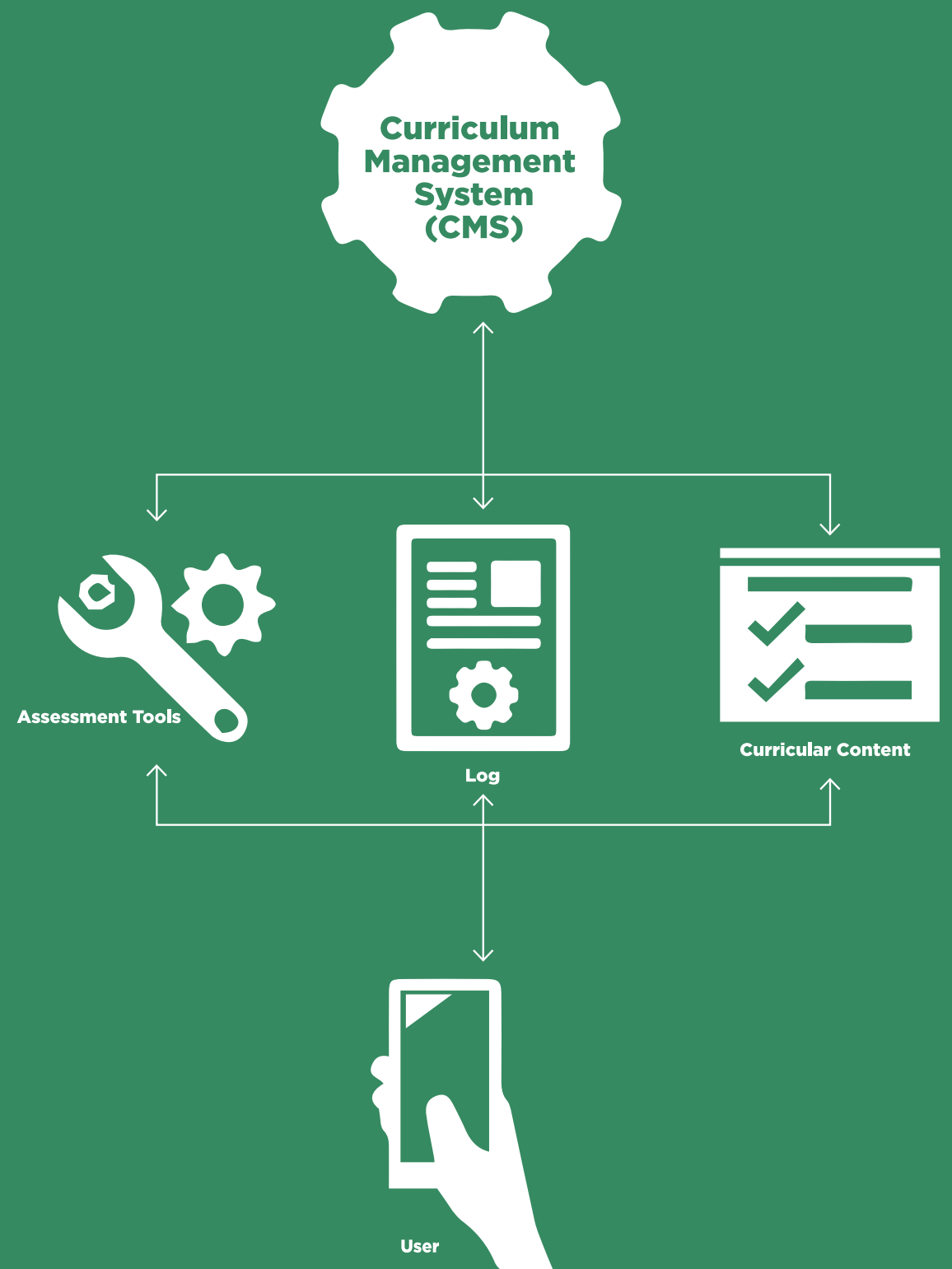
is defined as an
iliacs.

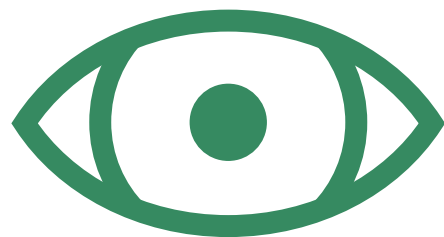
RAPID. RELIABLE. RESPONSIVE.

The Shared Discovery Curriculum requires staff, student and faculty access to schedules, content, assessments and data that is rapid, reliable and responsive to each stakeholder's needs.

Originally developed and used within our Internal Medicine clerkship, JustInTimeMedicine® (JIT) accomplishes these critical functions. First, JIT® is a self-service interface that facilitates the authoring of customized content and criterion-based assessment tools that are easily accessed and displayed on internet-enabled devices. Second, it makes possible the capturing and reporting of learner progress through the curriculum. Third, JIT® provides easy access to and use of tools and data analytics by students and faculty to accomplish both learner instruction and faculty development. Lastly, it creates permanent records and dashboards of learner competencies for student assessment, curricular evaluation and continuous quality improvement.

JIT® leverages cloud-based technology. The content along with all embedded links and visual aids, functions like an "app," but is device-agnostic, functioning on all internet enabled mobile devices with adaptive screen design.





**STUDENTS, FACULTY
AND STAFF**

DIFFERENT PURPOSES. **DIFFERENT REPORTS.**

JIT® provides dynamic dashboards of student performance data. Embedded logic models and intuitive graphic design allow quick and accurate determination of individual student performance on SCRIPT competencies. Details are just a click away. Fellows view aggregate performance of scholar groups to enhance coaching and learning. Faculty and staff create curricular reports to ensure balanced coverage of information and report to accrediting bodies.

Robust assessment reporting enables and simplifies meeting the goals of criterion-based assessment, as well as licensing and accreditation reporting requirements. To have maximal functionality, assessment reports may be displayed in different ways and for different purposes.

Visit JustInTimeMedicine.com to learn more.



MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

PROGRESS ASSESSMENTS

Progress testing assesses knowledge, skills and behaviors longitudinally to facilitate adult learning. In essence, the College of Human Medicine Progress Suite of Assessments are the graduation test for the MD degree, measuring the entire body of knowledge that a student should master by the end of medical school.

Rather than aiming for mastery of a small amount of knowledge, progress testing assesses incremental improvement in student performance over an extended period of time. This approach discourages binge learning — and binge forgetting — a common flaw in traditional medical school testing strategies.

The Shared Discovery Curriculum takes the concept of progress assessment and

applies it to patient care performance and necessary science knowledge, bioethics and the social context of clinical decision-making. It is aligned with our SCRIPT competency goals as represented in the table below.

Our progress assessments will include the nationally normed multiple-choice examinations associated with a professional education but will not stop at the determination of what our learners “know.” A novel core assessment, the Progress Clinical Skills Examination, will require students to demonstrate the ability to integrate knowledge and skills during actual performance with standardized patients. Other assessments in the suite will include the ratings of their faculty, peers, health care team members and actual

patients. This will enable understanding of what College of Human Medicine students “do.”

Portfolios of evidence containing essays, videos, reflections, scholarly products and projects will be regularly reviewed by Learning Society faculty to assure that demonstration of the necessary knowledge, skills and behaviors is taking place, and that learners can receive anticipatory guidance to achieve not only competence, but excellence. Ongoing data flow from these multiple types of assessments will assure that students, faculty and administration know how to improve. Students with particular strengths (perhaps a strong basic science or clinical background) and weaknesses (perhaps a time away from formal schooling or an atypical

college major) will be guided to focus on particular areas of challenge and opportunity.

Progress suite assessments will be offered twice a semester and will be available to students of all levels of the curriculum.

Students will need to pass the progress suite of assessments in order to move through the curriculum.

The Shared Discovery Curriculum combination of progress testing and experience-based education will fuel individual learning planning so that students can achieve their full potential.

PROGRESS ASSESSMENT

Progress Clinical Skills Examination	Progress Clinical Skills Examination	Progress Clinical Skills Examination	Progress Clinical Skills Examination	Progress Clinical Skills Examination	Progress Clinical Skills Examination
	Comprehensive Necessary Science Examination	Comprehensive Necessary Science Examination	Comprehensive Necessary Science Examination		Comprehensive Necessary Science Examination
Multi-Source Feedback	Multi-Source Feedback	Multi-Source Feedback	Multi-Source Feedback	Multi-Source Feedback	Multi-Source Feedback
Portfolio Artifact Review	Portfolio Artifact Review	Portfolio Artifact Review	Portfolio Artifact Review	Portfolio Artifact Review	Portfolio Artifact Review
End of Semester Self Assessment	End of Semester Self Assessment	End of Semester Self Assessment	End of Semester Self Assessment	End of Semester Self Assessment	End of Semester Self Assessment
S	C	R	I	P	T
SERVICE	CARE OF PATIENTS	RATIONALITY	INTEGRATION	PROFESSIONALISM	TRANSFORMATION

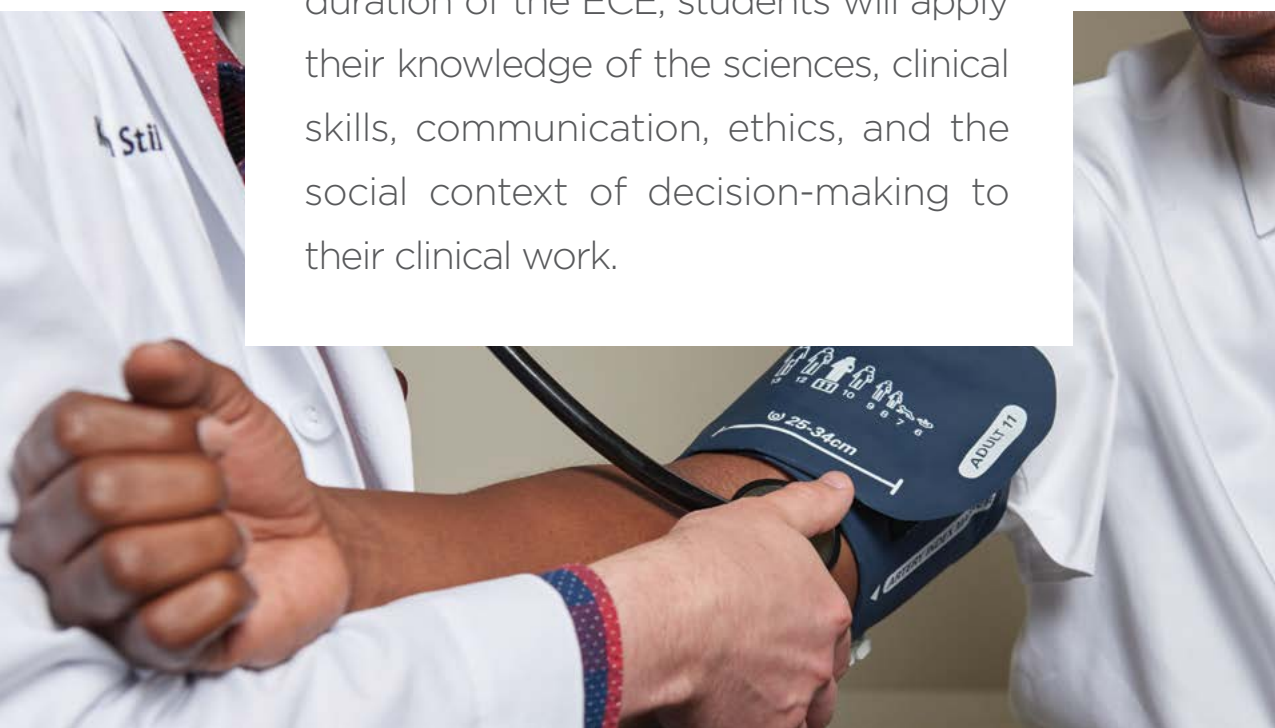


MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

EARLY CLINICAL EXPERIENCE



The 24-week Early Clinical Experience (ECE) begins with preparation for clinical work, emphasizing and enabling student and patient safety in clinical settings. Students will begin orientation to their assigned ambulatory clinic site and will start learning the clinics' processes. After demonstrating the knowledge and skills necessary to safely participate in a real patient care environment, students will engage in patient care, care management and data gathering for patients with common presenting conditions. Throughout the duration of the ECE, students will apply their knowledge of the sciences, clinical skills, communication, ethics, and the social context of decision-making to their clinical work.



PATIENT CARE

- Room Patients
- Vital Signs
- Growth Chart
- Medication Reconciliation
- Vaccinations
- Diabetic Foot Exam
- Perform Electrocardiograms (ECG)
- Peak Flow Measurement
- Depression Screening
- Stool Occult Blood
- Urinalysis

CARE MANAGEMENT

- Phone Follow-up
- Smoking Cessation
- Diet / Lifestyle Change
- Patient Care Registries
- Population Health or Quality Improvement Initiatives

DATA GATHERING

- Blood Pressure Concerns
- Immunizations
- Upper Respiratory Symptoms
- Dyspnea
- Dysuria
- Blood Glucose Regulation
- Palpitations
- Abdominal Pain
- Joint Pain
- Dizziness
- Anxiety
- Depression
- Health Maintenance

A “WEEK IN THE LIFE” OF AN ECE STUDENT MIGHT LOOK LIKE THIS:

MON	TUES	WED	THURS	FRI	
Large Group (Team-Based Learning, Patient Panels, etc.)	Primary Care Clinic	Guided Independent Learning	Clinical Simulation	Guided Independent Learning	AM
				Post Clinic Group	
Guided Independent Learning	Post Clinic Group	Virtual Imaging Lab	Primary Care Clinic	Gross Anatomy Lab	PM
	Guided Independent Learning	Guided Independent Learning		Guided Independent Learning	

Learning objectives for the week will be delivered using a combination of methodologies that take place in large and small groups as well as via guided independent study. Simulation forms a backbone of our curriculum, enabling learners to practice, receive feedback and hone knowledge and skills in a realistic environment. This replaces the “see one, do one, teach one” model to enable learners to experience psychological safety and patients to receive safe care.

The ECE students will meet twice a week with their Learning Society faculty in Post Clinic Groups (PCGs). This curricular experience has multiple core functions: 1) integration of curricular content and clinical experience, 2) preparation for weekly simulations and large group learning experiences, 3) individualized learning plan development and coaching, 4) case-based learning, 5) necessary science and 6) clinical medicine.

Guided independent learning is based on a flipped classroom principle in which students use allotted time to master material independently and use subsequent small groups and large sessions to apply the knowledge they acquired.

The college successfully piloted the ECE in the summer of 2013 and found that matriculating students were able to meet the intermediate clinical goals of the ECE in six weeks. The pilot validated the core function of the post clinic groups, finding that faculty skill in debriefing the clinical experience and teaching the necessary science within the PCG structure steadily improved over time. Although the delivery of the pilot was not intentionally organized using Learning Society principles, faculty and students strongly embraced the structure. This “shared discovery” has been of fundamental importance to all subsequent curricular visioning.

INTERSESSIONS


MICHIGAN STATE
UNIVERSITY

INTERSESSIONS OCCUR BETWEEN CLINICAL EXPERIENCES.

CORE INTERSESSIONS

Required for all students.

Examples include:

- Epidemiology and Evidence-Based Medicine
- Maximizing Health Outcomes in Diverse Populations
- Preparation for USMLE Step 1

FOUNDATIONAL INTERSESSIONS

Designed to consolidate and strengthen student performance.

Examples include:

- Histology and Pathology
- Microbiology and Immunology
- Clinical Skills
- Biochemistry and Genetics
- Physiology and Pharmacology
- Anatomy and Neuroanatomy

SPECIALIZED INTERSESSIONS

Focused on in-depth exploration of a topic.

Examples include:

- Problems at the Frontiers of Bioethics
- Specialized Topics in Genetics and Genomics
- Principles of Medical Education
- Advanced Clinical Skills
- Current Topics in Microbiology and Infectious Diseases
- Global Health
- Diagnostic Imaging

INTERSESSION MODULES SCHEDULE EXAMPLES

After the ECE, students complete intercession modules, based on their performance on the Progress Suite and individual learning plans. Intercessions are focused-topic study courses that occur between clinical experiences.

EXAMPLE ONE

	I	II	
APRIL	Advanced Clinical Skills	Special Topics Nutrition	EARLY INTERSESSIONS
MAY	Foundations of Histology and Pathology	Principles of Medical Education	
JUNE	Evidence-Based Medicine	Diverse Populations	
JULY	Medical Humanities	Advanced Evidence-Based Medicine	

	I	II	
APRIL	Research Elective	Foundations of Physiology and Pharmacology	MIDDLE INTERSESSIONS
MAY	Neuroanatomy	USMLE Board Preparation	
JUNE			
JULY			

EXAMPLE TWO

	I	II	
APRIL	Foundations Immunology and Microbiology	Introduction to Public Health	EARLY INTERSESSIONS
MAY	Clinical Anatomy	Frontiers of Bioethics	
JUNE	Medical Humanities	Open	
JULY	Diverse Populations	Evidence-Based Medicine	

	I	II	
APRIL	Special Topics in Immunology	Introduction to Diagnostic Testing	MIDDLE INTERSESSIONS
MAY	USMLE Board Preparation	Open	
JUNE			
JULY			

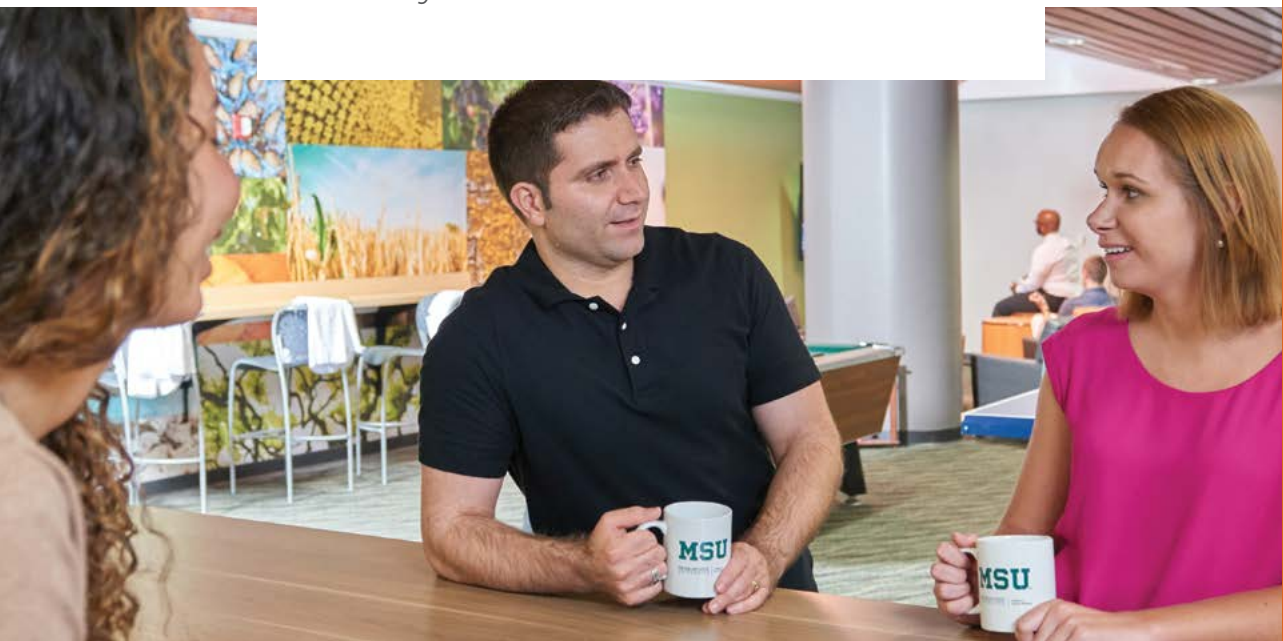


MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

MIDDLE CLINICAL EXPERIENCE



The Middle Clinical Experience (MCE) delivers substantive ambulatory and inpatient rotations which emphasize the integration of clinical work in health care teams with the underlying necessary science required to care for patients. Students rotate through varied clinical settings learning from residents and attending physicians as well as interprofessional experiences working with and learning from the other members of their health care delivery team.



MIDDLE CLINICAL EXPERIENCE **ROTATIONS**

- Physical Therapy
- Respiratory Therapy
- Pharmacy Service
- Social Work
- Nutrition
- Pediatric Wards
- Adult Wards
- Ambulatory Obstetrics and Gynecology
- Newborn Nursery
- Palliative Care/Pain Management
- Emergency Medicine
- Nursing

A “WEEK IN THE LIFE” OF A STUDENT ON THE INPATIENT WARD MIGHT LOOK LIKE THIS:

	MON	TUES	WED	THURS	FRI	SAT
AM	Clinical Activity: IM or FM service	Clinical Activity: IM or FM service	Clinical Activity: IM or FM service	Clinical Activity: IM or FM service	Clinical Activity: IM or FM service	Clinical Activity: IM or FM service
PM	Guided Independent Learning	Team Post Clinic Group	Large Group (Team-Based Learning, Patient Panels, etc.)	Simulation or Workshop	Guided Independent Learning	

A “WEEK IN THE LIFE” OF A STUDENT ON THE NUTRITION CONSULTATION SERVICE MIGHT LOOK LIKE THIS:

	MON	TUES	WED	THURS	FRI
AM	Clinical Activity: Nutrition	Clinical Activity: Nutrition	Guided Independent Learning	Nutrition Rotational PCG	Clinical Activity: Nutrition
PM	Guided Independent Learning	Team Post Clinic Group	Large Group (Team-Based Learning, Patient Panels, etc.)	Simulation or Workshop	Rotational Post Clinic Group

Middle Clinical Experience students will continue to have one Post-Clinic Group (PCG) session to debrief and discuss the “Chief Complaint and Concern” of the week (chest pain or cyanosis, for instance), and will also meet

in rotational small groups to discuss “Topics of the Week” relevant to their specific rotation (e.g. vaginal bleeding if they are doing ambulatory obstetrics and gynecology).



MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

LATE CLINICAL EXPERIENCE

During the Late Clinical Experience (LCE), students will be engaged in disciplinary clerkships. These enable students to bring their increasingly significant patient care experience to a specialty-driven population of patients and their problems. This will occur both in the hospital and in the outpatient setting. Because students do so much clinical work in the Early and Middle Clinical Experiences, elective clerkships will be available early in the Late Clinical Experience. Students will have additional time to pursue their interests or the completion of research projects or certificate programs begun earlier in the curriculum. The Learning Society will continue to meet throughout the LCE focusing on longitudinal clinical, scientific and social topics as part of Advanced Skills and Knowledge, a semester long course. The Learning Society small groups will meet less frequently than in the ECE and MCE and will require students to provide more intellectual leadership than in the previous clinical experiences.



LATE CLINICAL EXPERIENCE **CLERKSHIPS**

- Internal Medicine
- Family Medicine
- Pediatrics
- Obstetrics and Gynecology
- Surgery
- Psychiatry
- Critical Care

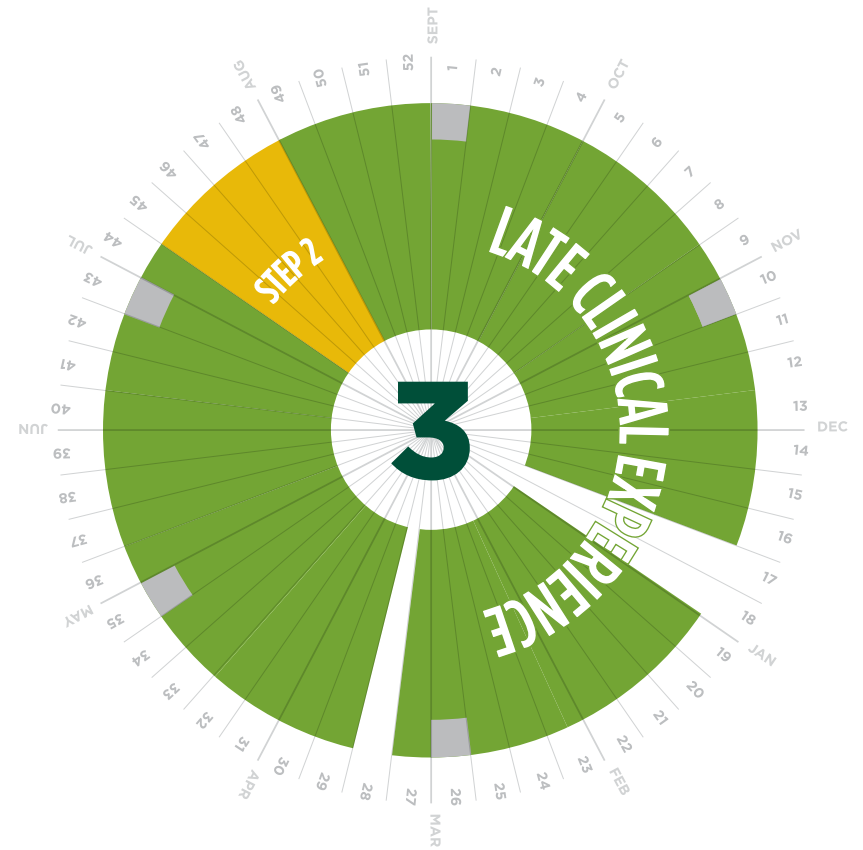
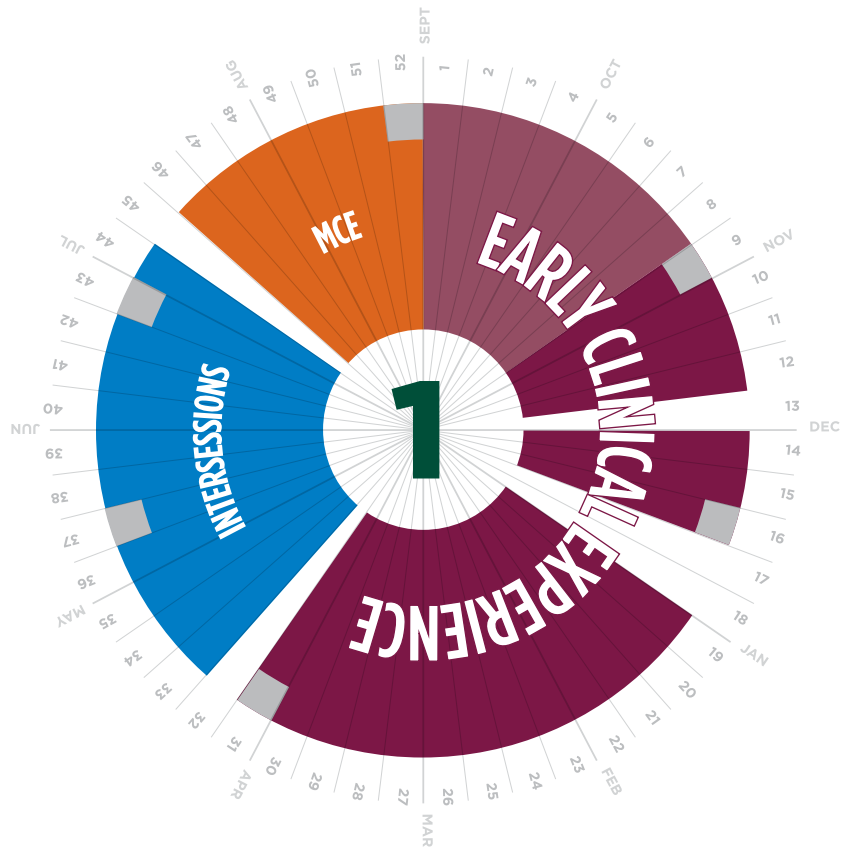




MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

FOUR YEARS OF MEDICAL SCHOOL

A GUIDE TO EACH YEAR OF OUR CURRICULUM.



● ECE ● MCE ● LCE ● INTERSESSIONS ● PROGRESS ASSESSMENT

● STEP EXAMS & COMMENCEMENT ● RESIDENCY BEGINS

Four Years of Medical School

A photograph of four medical students in white lab coats walking outdoors on a campus. In the background, there is a large bronze statue of a man in a suit, and lush green trees under a bright sky. The text is overlaid on the right side of the image.

MSU COLLEGE OF HUMAN MEDICINE
SHARED DISCOVERY CURRICULUM

A RADICAL NEW CURRICULUM

OUR HOPES AND DREAMS. REALIZED.

Michigan State University College of Human Medicine stands at the forefront of national efforts to improve the medical school experience in response to changes in the landscape of health care, advances in medical knowledge and new understanding about lifelong learning and competency-based assessment. Our Shared Discovery Curriculum is truly an innovative approach to medical education that is both student-centered and patient-centered, making the patient the focus of our entire educational enterprise. The Shared Discovery Curriculum embraces change. Its delivery employs technology where it is most useful and the human touch where most needed. It reaches for both the attainable and the aspirational goals of our learners and our faculty. Its creation truly represents hundreds of hours of the best kind of work: shared discovery in service of the hopes and dreams of the college — to serve our patients and to make their lives better.

Compassion

Honesty



College of Human Medicine
MICHIGAN STATE UNIVERSITY

Learn more at
curriculum.chm.msu.edu

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