UNM SCHOOL of MEDICINE

Phase I Medical Student Handbook

Class of 2021

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General Information: Curriculum Overview

The University of New Mexico School of Medicine prides itself on its evolving curricular innovations that are aimed at adapting adult learning theory to medical education. The structure of the curriculum reflects the shift in emphasis from solely learning facts to teaching students the skills they will need to be effective lifelong learners.

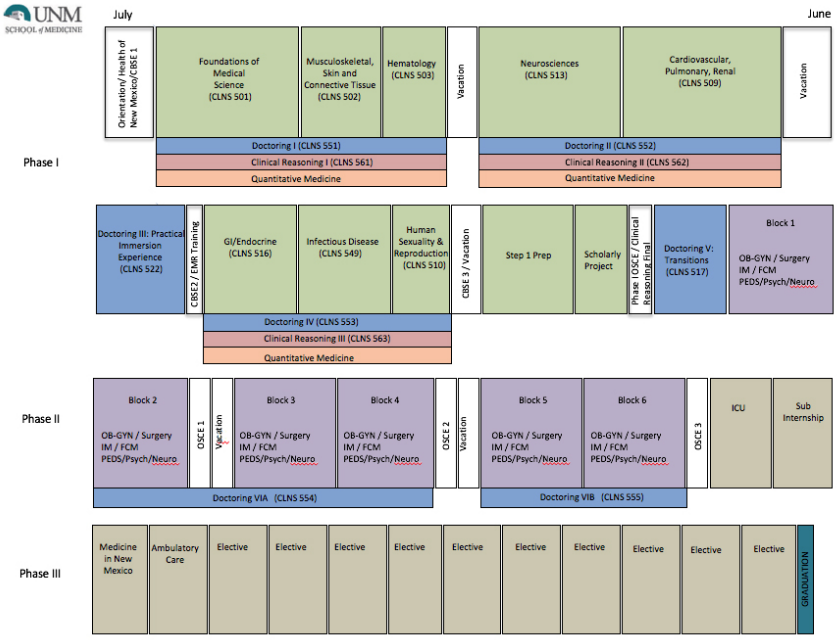
Current educational initiatives are aimed at fostering the integration of the basic sciences and clinical medicine, early exposure to patients and communities to enhance teaching and learning, progressive development of clinical reasoning skills through a problem-based approach, emphasizing professional identity formation, and attention to personal and professional wellness.

The School of Medicine curriculum is comprised of three phases:

Phase I: The first 18 months focus on core basic science education and its relevance to and integration with quantitative medicine, clinical reasoning and clinical skills development. Basic science content is organized primarily into organ system blocks, which allows for the integration of normal structure and function with specific pathophysiology. Competency exams are administered throughout Phase I and assess basic science block content, as well as ethics, professionalism, clinical skills, clinical reasoning and communication skills.

Phase II: 12 months that comprise the required clinical clerkships in Family Practice, Internal Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry and Surgery. Professional identity formation continues in Phase II with special topics relevant to the clinical phase of training.

Phase III: The final 12 months, which includes clinical and non-clinical electives, a required sub-internship, ICU rotation, and an ambulatory and community-based clinical experience.



Phase I Course Descriptions:

Health of New Mexico

Health of New Mexico is a short 5-day block that takes place during the 2-week orientation period. The goals of this course are to have students: 1) consider the role of the Medical School in the state and in the health of its population, 2) understand the role of clinicians in managing the health of individuals and populations with a focus on the major causes of ill health, 3) consider the complex etiologies of health, wellness and illness with a focus on NM, including the role of social determinants of health and 4) understand the role of partners outside of the HSC in improving health of NM residents. *Block Chair: Rob Williams, MD*

Foundations of Medical Science

Foundations of Medical Science is a 10-week block that focuses on the genetic, molecular and cellular principles that form a foundation for the study of the organ systems during the subsequent Phase 1 curriculum. In addition, this course integrates concepts of pathology, immunology, and pharmacology as the basis for understanding human disease. The block is intended to convey the excitement and challenges of the intersection between rapidly evolving advances in our understanding of the molecular and cellular basis of disease with modern medical practice. *Block Chairs: David Bear, PhD; Venna Singh, MD; Bryce Chackerian, PhD*

Musculoskeletal, Skin and Connective Tissue

The Musculoskeletal, Skin and Connective Tissue Block is a 6-week block that covers basic anatomical concepts, the normal anatomy and development of the musculoskeletal system, structure and function of the skin and the pathophysiology of disorders affecting these systems. The course uses an integrated approach with large and small group learning, laboratories and independent learning. *Block Chairs: Rebecca Hartley, PhD and Paul McGuire,* PhD

Hematology

Hematology is a 3-week block that focuses on an overview of basic principles of hematology and hemostasis. This course builds on concepts established during Foundations of Medical Science in the consideration of the diseases of the circulating elements of blood.

Block Chairs: David Czuchlewski, MD and Evelyn Lockhart, MD

Neuroscience

The Neuroscience Block is an 9-week course designed to provide students with a foundation in neurosciences including neuroanatomy, neurophysiology, neuropharmacology, neuropathology and behavioral neurosciences. Basic concepts are learned within the context of neurological and psychiatric disease. *Block Chairs: Fernando Valenzuela, MD, PhD and Deborah Dellmore, MD*

Cardiovascular, Pulmonary, Renal

The Cardiovascular/Pulmonary/Renal Block is a 10-week block that provides a foundation in the basic sciences of the three organ systems as well as problem-solving skills related to these disciplines. Included in this block are relevant topics in physiology, pharmacology and pathology. *Block Chair: Helen Hathaway, PhD*

GI/Nutrition/Metabolism/Endocrine

The GI/Nutrition/Metabolism/Endocrine Block is an 8-week course that examines the principal biological features of the gastrointestinal (GI) tract, the pathophysiology associated with certain disorders of this system, fundamental concepts of nutrition in maintaining and restoring patient health, metabolic events that regulate energy production and consumption, and the fundamentals of endocrinology and diseases of the endocrine system. *Block Chairs: Rob Orlando, PhD and Mark Burge, MD*

Infectious Disease

The Infectious Disease Block is a 6-week course designed to give students an understanding of the basic concepts of microbiology, pathology and pharmacology that can be applied to the understanding of host and pathogen interactions in infectious diseases. *Block Chairs: Michelle Iandiorio, MD and Steven Bradfute, PhD*

Human Sexuality and Reproduction

The Human Sexuality and Reproduction block is a 3-week block that focuses on the basic science and important clinicopathologic aspects of the human reproductive system. The course provides opportunities for discussion of medical aspects of human sexuality and the behavioral, social and population aspects of issues related to human reproduction. *Block Chair: Lisa Hofler, MD*

Clinical Reasoning

An integrated curriculum designed to (1) explicitly model and actively engage students in the clinical reasoning process during block relevant case discussions, (2) provide structure, guidance and assessment for self-directed learning and information seeking skills, and (3) provide structure and guidance for the skills of critical judgment and medical problem solving. *Block Chairs: Deepti Rao, MD, Patrick Rendon, MD and Justin Roesch, MD*

Quantitative Medicine

A longitudinal course that applies the principles of epidemiology, study design and biostatistics to health care data and research. Using active learning modalities in the classroom, these basic principles of epidemiology and biostatistics will be applied to clinically relevant scenarios. The course will utilize an evidence-based practice framework to inform decisions for optimal patient care. *Block Chairs: Melissa Schiff, MD and Jens Langsjoen, MD, Jonathan Eldredge, PhD*

Doctoring 1: Laying the Foundation

Students are introduced to what it means to be a clinical practitioner and learn the basic techniques that clinicians use to forge the clinician-patient relationship, as well as communication and examination techniques to obtain essential information from the patient. They also learn how to develop a list of patient problems, and how to present patient findings in both oral and written form. *Block Chairs: Jennifer Benson, MD, and Ann Morrison, MD*

Doctoring 2: Stepping into Roles and Exploring Perspectives

In Doctoring 2, medical students have the experience of stepping into a variety of new roles, including the roles they assume when interacting with patients in a real clinical environment. In addition, students are challenged to explore the perspectives of those impacted by healthcare and the healthcare system, including the patient, the community, and clinicians. Students build skills in communication and physical exam skills related to the diseases presented in the Phase 1 basic science blocks. Each student also explores and develops his/her unique role and perspective as a professional-in-training. The course prepares students to assume their clinical role in the Practical Immersion Experience (PIE) as they continue to develop their professional identities.*Block Chairs: Felisha Rohan-Minjares, MD, and Ann Morrison, MD*

Doctoring 3: Practical Immersion Experience

The Practical Immersion Experience (PIE) is a 6-week, rural, community-based clinical preceptorship during which students live in the community to which they are assigned. Students are mentored by a practicing community physician. PIE offers the opportunity to learn in the setting of a clinical practice, and apply the skills and knowledge acquired during year 1

basic science courses, Clinical Reasoning, and Doctoring 1 and 2. Students integrate basic science, communication skills, and clinical skills into the day-to-day practice of medicine, using patients and their problems as the springboard for their learning. PIE also offers the opportunity to observe first-hand the impact of being a physician on one's own life and lifestyle. *Block Chairs: Anthony Fleg, MD, and Ann Morrison, MD*

Doctoring 4: Equipping Your Professional Toolbox

This course allows students to build on clinical skills from previous Doctoring courses and to observe and practice focused evaluations of patients related to the concurrent basic science organ system curriculum. Students deliver oral presentations and provide written documentation of the healthcare encounter under the mentorship of primary care physicians. . Students also reinforce their patient-centered communication skills in numerous situations, including cross-cultural and in shared patient-clinician medical decision making. *Block Chairs: Jennifer Benson, MD, and Ann Morrison, MD*

Doctoring 5: Transitions

The goal of the Transitions block is to assist students in transitioning from the basic science years of the curriculum to the clinical clerkships. The objectives of the transitions block are accomplished by a combination of specially designed small-group cases, lectures, demonstrations, labs, panels and numerous practical exercises to reinforce the skills needed for future success in the clinical environment. *Block Chairs: LeRoy Danielson, MD, and Ann Morrison, MD*

Anatomy, Histology and Embryology Thread

The study of morphology (gross anatomy, histology and embryology) is integrated as a thread throughout the Phase I curriculum. Time will be spent in the anatomy lab and learning the associated microanatomy (histology) and embryology during the beginning of each organ system block. This is designed to achieve a better integration of normal structure with function and pathology. *Thread Leaders: Rebecca Hartley, PhD and Paul McGuire, PhD*

Biochemistry Thread

The study of biochemistry in modern medicine transcends traditional disciplinary boundaries and provides a vital link for developing effective diagnostic and therapeutic strategies for successful patient care. The fundamentals of medical biochemistry are integrated as a thread throughout the Phase I curriculum with the primary objective of providing content support for each of the Phase 1 Blocks to improve and deepen student understanding of Block specific

topics. Emphasis is placed on identifying metabolic challenges in health and disease, and how these challenges impact normal physiology. *Thread Leader: Rob Orlando, PhD*

Pharmacology Thread

Pharmacology is the basic biomedical science discipline focused on how drugs affect the body (pharmacodynamics) and how the body affects drugs (pharmacokinetics). Pharmacology relies on a basic knowledge of the anatomy, biochemistry, physiology and pathology of organ systems to understand the mechanistic basis for both the therapeutic effects as well as the side effects and toxicities associated with drug administration. Pharmacology is presented throughout the Phase I curriculum to maximize its integration with the other basic medical science disciplines. There are many more drugs and information about drugs to learn than is possible during Phase I. In an effort to optimize your study of pharmacology, the faculty limit their presentations to "prototype" drugs that often represent a large class of therapeutic agents, and focus on the primary mechanism(s) of drug action as they relate to their therapeutic effects and their primary or most significant side effects. These areas of drug knowledge are the most relevant and important in preparing for the NBME Step I. Trade names and detailed dosing information are not emphasized during Phase I teaching of pharmacology. *Thread Leader: Dan Savage, PhD*

Pathology Thread

Pathology is the study of disease; more specifically, the study of the structural, biochemical, and functional changes in cells, tissues and organs that underlie disease. Pathology focused topics in each block are incorporated into classroom hours and reading assignments. Reinforcement of pathology learning "threads" in organ system blocks uses cased based educational strategies. *Thread Leader: Karen Santa Cruz, MD*

Medical Student Scholarly Project

Scholarship is an important component of the curriculum. Each medical student is required to engage in a faculty-mentored scholarly project, as a requirement for graduation. The process of identifying a topic, finding a mentor and proposing a project begin in Phase I of the curriculum. In collaboration with the Quantitative Medicine thread, students will develop skills in research design, research methodology, summarizing and reviewing of the medical literature. Scholarly Projects help students develop practical skills in the scientific method and understand the role of research in informing clinical practice. Students develop and complete a scholarly project in an area of interest related to medical science and/or health care and publicly present or publish their results prior to graduation
Project Director: Pamela DeVoe, PhD

Phase I Policy on Attendance and Participation

The purpose of this policy is to specify the expectations and requirements for student attendance and participation in the Phase I Curriculum activities. The Phase I Curriculum consists of a variety of educational activities that include large and small groups, laboratories, independent on-line learning, simulation, and clinical workplaces each of which assumes a certain level of attendance and participation in order to obtain the most beneficial learning. An expectation that students are fully engaged in these learning activities is supported by:

- The value of active team based learning in a student's professional development and in a physician's work life.
- Students' professional responsibility to contribute to the learning of peers by preparing for and participating fully in group learning activities.
- The need to prioritize and avoid disruption to patient care in clinical workplaces, and to ensure that students are viewed as integral members of the care delivery team.
- Respect for patients who contribute generously to a students' education; faculty who would alternatively be engaged in patient care, research or other professional activities; and staff who coordinate curricular activities.
- The alignment with accreditation and licensing standards.

Students are accountable for effectively managing their schedules, monitoring their on-time attendance and participation, communicating professionally about absences and seeking the School's assistance if personal circumstances interfere with their on-time attendance and participation.

<u>Expected Attendance Practices</u>

1. Students are **required** to attend certain learning activities indicated as required and are expected to complete the pre-class work in preparation for these in-class sessions including:
    - Any scheduled Team-Based Learning (TBL) session, Case-based learning (CBL) session or Peer Instruction (PI) session.
    - Any session in which patients or standardized patients are physically present as part of the learning experience.
    - Any small group session in which students work together as a team and teach each other including Doctoring small groups, anatomy or pathology laboratories and Clinical Reasoning sessions.
2. Students are **expected** to arrive on time and participate fully in the educational activities.
3. Students are **highly encouraged** to attend lectures and review sessions.
4. Students may request absences of 1-3 days for personal and professional commitments, attendance at professional meetings/conferences, family

events/obligations and religious observances. Student must work directly with the course director for approval and to facilitate the make-up of any activities or assignments. The Office of Assessment and Learning must additionally approve absences from assessments. Please consult the School of Medicine Leave Policy for further details on absences, including emergency or extended leaves of absence.

5. A request for time off to attend a professional meeting/conference requires approval from the block chair and should be initiated prior to the start of the block. Students must be in good academic standing, not miss more than one required small group session, be presenting research or representing UNM as an officer or delegate and will work with the Block Chair to facilitate making up missed activities and assignments.
6. Certain sessions may be delayed or canceled due to weather. Please consult the Inclement Weather Policy for details.

Assessment in Phase I

Phase I consists of 17 graded curricular components. All components are graded as Pass/Fail (Credit/No Credit).

The faculty of the School of Medicine subscribe to the belief that assessment is an essential part of learning. It is the school's responsibility to develop assessment practices that are fair and to assure that students are promoted from the pre-clerkship part of the curriculum based in part upon their demonstration of competence in medical knowledge and their ability to successfully pass USMLE Step 1.

<u>Policies and Practices</u>

(1) 75% minimum to receive Credit for a Phase I block.
This applies to all blocks in Phase I whose final grades are determined using assessments with numerical scores.

(2) Students must pass on their own merits without assistance from any group assessments/assignments or extra credit points for participation/attendance.
Final grades will be calculated without taking the group assessment grades or extra credit points into consideration and will only be added to the calculation of the final block grade if the average on individual assessments meets the minimum standard of 75%.

(3) Final exams will be comprehensive and retests will be different from the original exam.

(4) All blocks in Phase I will offer formative feedback that includes exercises/assessments with no impact on the final course grade.

(5) Progress Testing in Phase I will be via the Comprehensive Basic Science Exam (CBSE). Progress testing provides students with exposure to Step 1 type questions, practice with Step 1 type testing procedures and a sense of their knowledge base in preparation for Step 1. Progress testing also informs the Curriculum Committee and Phase I block chairs as to the effectiveness of the curriculum in preparing students for Step 1.

(6) Students will additionally receive narrative feedback in those courses where faculty work with students for a significant amount of time in small-groups or one-on-one (e.g. Clinical Reasoning, Doctoring).

(7) Quizzes and exams that are written in multiple-choice USMLE 1 Step 1 format have a single-best-answer. Although there may be more than one possible choice that could be true under certain circumstances, the correct answer will be the single best answer. If for any reason the instructor chooses to discard a question after the exam has been scored, the new score for the exam will be based on the number of correct answers to the remaining questions. Thus, in some cases when a question is discarded, a student's original score may go up or down. There will be no credit given for a correct answer to a question that is discarded.

Remediation in Phase I

Incomplete

If the student does not take an examination because of approved extenuating circumstances, he/she receives a grade of "Incomplete". If the student receives an "Incomplete" he/she is allowed to complete course requirements at a date and time that is mutually acceptable to both the student and block chair. Completion of the course requirements should be scheduled during a time when no class is in progress.

No Credit/Fail

Re-test examinations may be taken only in the academic phase in which the student received the grade of "No credit" (NC or FAIL). All NC (FAIL) grades must be converted to a grade of "Credit" (CR or PASS) by means of a re-test before promotion to Phase II.
Each academic unit/course must provide one and only one opportunity for a re-test to students receiving a grade of NC (FAIL). The format of the re-test is at the discretion of the responsible faculty. However, the re-test must be comparable to the original evaluation. Re-test examinations for FAIL grades cannot be taken while another block is in session. Please be advised that dates for re-tests are set by the Office of Assessment and Learning.

Remediation of a component of the Phase I curriculum

Any student who, at the end of Phase I-1, is unsuccessful in improving his/her grade by passing the re-test and still records a grade of "NC" (FAIL) or "I" (INCOMPLETE), must petition the Committee on Student Promotion and Evaluation (CSPE) for permission to repeat Phase I-1. Similarly, any student who, at the end of Phase I-2, is unsuccessful in improving his/her grade

by passing the re-test and still records a grade of "NC" (FAIL) or "I" (INCOMPLETE), must petition CSPE for permission to repeat Phase I-2. CSPE will review each petition and approve or decline the request. If the request is approved and the student repeats a portion of the curriculum, the student's grades ("NC"/"CR") from both attempts will appear on the student's official transcript.

When a student is repeating the Phase I-1 or Phase I-2 year, a grade of "NC" (FAIL) for any block in the repeated year will result in immediate referral to CSPE for dismissal. No re-test is permitted for a failed block during a repeated Phase I-1 or Phase I-2 year.
Students who have successfully repeated Phase I-1 year but then fail one Phase I-2 block and its re-test or fail two Phase I-2 blocks are not eligible to repeat Phase I-2 and will be referred to CSPE for dismissal. In the case of a grade of "NC" (FAIL) for any Doctoring course, the Director of the Doctoring course must assist CSPE in outlining an appropriate remediation for the curricular component.

Completion of On-line Phase I Evaluations

Timely completion of the on-line evaluation of Phase I blocks by students is essential for the continued improvement of Phase I. This anonymous feedback allows each Phase I block director to make appropriate improvements in his/her course, give constructive feedback to faculty who teach in the block, and give kudos to those faulty who have excelled at teaching. In order for any constructive changes to be made and for your feedback to be meaningful, it must be received in a timely manner. Therefore, completion of the on-line evaluation of each Phase I block by each student is mandatory.

Copyright and Course Materials

School of Medicine faculty will provide students with a variety of different types of course materials throughout Phase I including notes, PowerPoint handouts, cases and formative questions. Distribution of these materials or posting of these materials to a third-party website without the expressed written permission of its owner(s) may violate copyright and other intellectual property rights laws.

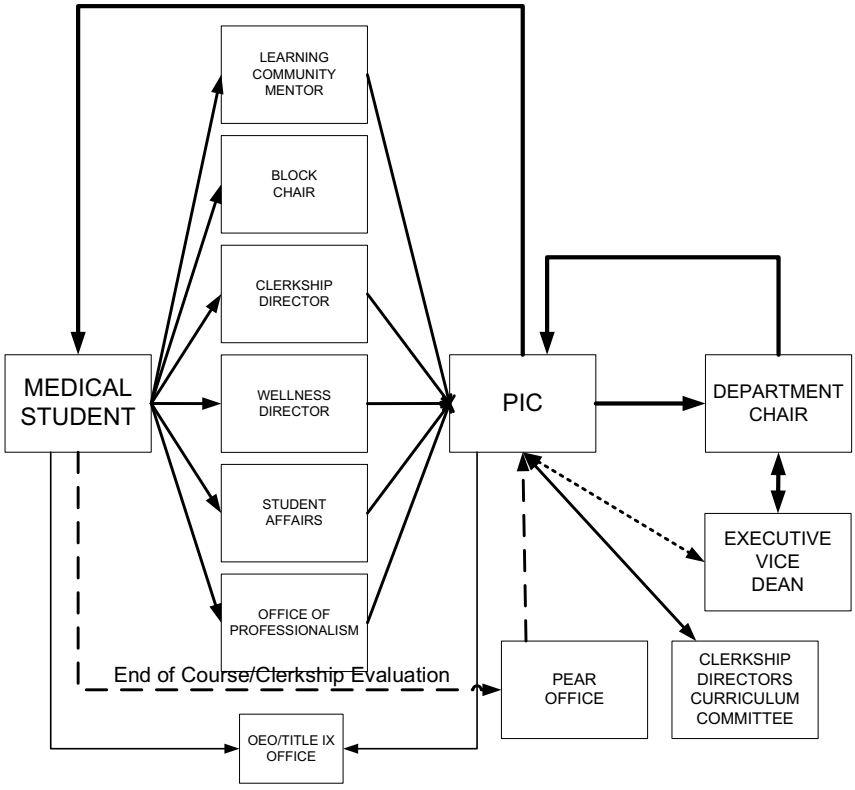
Professionalism and Student Mistreatment

Medical students and Faculty, whether employed by the University of New Mexico School of Medicine or affiliated through agreements with the University as volunteer community faculty, are obligated to interact with one another in a professional manner. The School of Medicine is committed to ensuring that the learning environment is conducive to open communication and robust interactions between faculty, learners and staff that promote the acquisition of knowledge and foster attitudes and skills required for the professional practice of medicine. Such activities require an environment that is free from harassment, discrimination, retaliation,

or other inappropriate conduct. These attributes describe professional behaviors that are expected from all members of the University of New Mexico School of Medicine. Professionalism is expected to be upheld during all exchanges including, but not limited to, face-to-face and telephone/teleconference meetings, texting, video, email, and social networking technologies. Professional behavior expects:

- Communication in a manner that is effective and promotes understanding.
- Adherence to ethical principles accepted to be the standards for scholarship, research, and patient care, including advances in medicine.
- Demonstration of sensitivity and respect to diversity in age, culture, gender, disability, social and economic status, sexual orientation, and other unique personal characteristics.
- Striving for excellence and quality in all activities and continuously seeking to improve knowledge and skills through life-long learning while recognizing personal limitations.
- Upholding and being respectful of the privacy of others.
- Consistently displaying compassion, humility, integrity, and honesty as a role model to others.
- Working collaboratively to support the overall SOM mission in a manner that demonstrates initiative, responsibility, dependability, and accountability.
- Maintaining a professional appearance, bearing, demeanor, and boundaries in all settings that reflect on the School of Medicine.
- Encouraging well-being and self-care for patients, colleagues, and oneself.
- Being responsive to the needs of patients and society that supersedes self-interest.

Complaints of unprofessional behavior or mistreatment may be made to an appropriate individual as indicated in the algorithm below:



Wellness Director:
Dr. Elizabeth Lawrence
272-4472
Elawrence@salud.unm.edu

Student Affairs:
Dr. Sheila Hickey
272-3414
Shickey@salud.unm.edu

Dr. Teresa Vigil
272-0660
tvigil@salud.unm.edu

Office of Professionalism:
Dr. Jonathan Bolton
272-8711
Jwbolton@salud.unm.edu

OEO/Title IX Office
http://oeo.unm.edu/
277-5251

Accommodations
Students with diagnosed disabilities who need accommodations for learning and/or testing must present current documentation. An HSC advisory committee evaluates the necessity for and appropriateness of accommodation requests to assist students in meeting the technical standards necessary for completing medical training. Students who have been diagnosed with a learning disability may contact the UME office or the Office of Medical Student Affairs for appropriate referrals.

Academic Integrity
The University of New Mexico and the School of Medicine believe that academic honesty is a foundational principle for personal and academic development. All University policies regarding academic honesty apply to all Curricular components. Academic dishonesty includes, but is not limited to, cheating or copying, plagiarism (claiming credit for the words or works of another from any type of source such as print, Internet or electronic database, or failing to cite the source), fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

Undergraduate Medical Education Administration and Services

Office of Undergraduate Medical Education (UME)
Website: http://som.unm.edu/leadership/education/ume/index.html
Phone: (505) 272-4823
Location: Reginald Heber Fitz Hall, room 114
Leadership: Paul McGuire, PhD, Associate Dean of Undergraduate Medical Education Office Functions: UME is responsible for the coordination of the four-year undergraduate medical education program, including curriculum, assessment, faculty development, program evaluation, and academic support. This oversight requires collaboration with the School of Medicine faculty, committees, and other groups to develop policies and review course activities. UME coordinates the Phase I curriculum schedule. UME may also fund and help arrange travel for students who represent UME at various conferences and national meetings throughout the year or to present their research at national meetings.

Assessment and Learning (A&L)
Website: http://som.unm.edu/leadership/education/ume/assessment.html
Phone: (505) 272-8028
Location: Health Sciences Library & Informatics Center Lower level, south side Leadership: Ed Fancovic, MD, Executive Director of Assessment & Learning
Office Functions: Assessment and Learning supports students and faculty in the use of formative and summative assessment to aid learning. A&L coordinates the HSC-wide Standardized Patient Program and provides planning for and production of performance and

written student assessments. This office reports grades, maintains test information for student review, and develops and provides learning support for patient interviewing, physical examination, patient communication, and ethics and professionalism skills. A&L also provides administrative support for the Patient Care Competency committee and supports and conducts educational scholarship.

Curriculum Support Center:
Website: http://som.unm.edu/leadership/education/ume/csc.html
Phone: (505) 272-8042
Location: Reginald Heber Fitz Hall, room B65
Leadership: Paul Perea, Program Operations Director
Office Functions: The Curriculum Support Center provides organizational and on-site support to faculty and students across the UME curriculum. This includes curriculum and room scheduling, session support for lectures and small group learning sessions, and all Doctoring sessions. We also manage the clinical rotation components for all Doctoring courses including the recruitment, management of all compliance requirement paperwork, and site matching for all student placements.

Academic Multimedia Services (AMS)
Website: http://som.unm.edu/leadership/education/ume/ets.html
Email: hsc-studio@salud.unm.edu
Phone: (505) 272-0666
Location: Health Sciences Library & Informatics Center, room 140
Leadership: Paul Perea, Program Operations Director
Office Functions: Enhances the learning process by advocating the seamless integration of educational technologies. AMS is the first stop for tech support with many of your technology resources including, Brightspace, One45, Examsoft, Mediasite (Lecture Capture), iClickers, ThinkShare, and various classroom technologies. Our studio provides direct support with high quality digital, audio visual, and production services for many of the multimedia materials used in the curriculum.

Office of Academic Resources and Support (OARS)
Website: http://som.unm.edu/leadership/education/ume/oars.html
Phone: (505) 925-4441
Location: Reginald Heber Fitz Hall, room B80
Leadership: Pam DeVoe, PhD, Program Operations Director
Office Functions: Offers academic support services to all medical students. Learning Specialists assist students in assessing and addressing any of the following: study skills, test-taking strategies, test anxiety, time management, organizational skills, problem solving, learning skills, and issues related to clinical skills, communication skills, professionalism, and ethics. OARS also coordinates the Mentored Scholarly Projects program for medical students, including coaching and instruction regarding research projects. OARS can also direct students to internal

or external resources, board review courses, diagnostic testing, etc. OARS sponsors a Peer Tutoring program for any student experiencing academic difficulties.

Office of Program Evaluation, Education, and Research (PEAR)
Website: http://som.unm.edu/leadership/education/ume/pear.html
Phone: (505) 272-8069
Location: Reginald Heber Fitz Hall, room B65G
Leadership: Rebecca Hartley, PhD, Executive Director
Office Functions: Provides evaluations of blocks, courses, and rotations, reports on student outcomes, and tracks graduates into practice. PEAR supports evaluation and research of educational initiatives in the health professions, including interdisciplinary and community-based projects and grants. Students are asked to evaluate courses and rotations throughout the curriculum. Most evaluations are available online and are completed by students both periodically throughout the course (weekly or biweekly evaluation of faculty) as well as at the end of the course (full evaluation). Students are invited to participate in the review of course evaluation data in Phase I as part of a continuous quality improvement process (CQI). Students are also randomly selected to attend student focus groups conducted about specific aspects of the curriculum.

Office of Medical Student Wellness
Phone: (505) 272-3414
Location: Reginald Heber Fitz Hall, room 147
Leadership: Liz Lawrence, Director
The first year of medical school is a tremendously exciting time. You have an opportunity to meet and bond with new classmates, to learn about the human body, and to work with patients for the first time. Phase 1 can also be challenging due to academic pressures, adjusting to being back in school after working for a few years, and/or juggling outside interests and relationships with your new schedule. You may feel like an "imposter" as you watch classmates settle into the medical school routine.
The Office of Medical Student Wellness is here to help you to maintain your personal and professional wellness in Phase 1. Please reach out to one of us if you begin to feel overwhelmed – or if you just want to talk about how best to integrate self-care into your daily schedule.

- Liz Lawrence, MD, Elawrence@salud.unm.edu, Director of Medical Student and Physician Wellness
- Jeff Dunn, MD, JeDunn@salud.unm.edu, Psychiatrist (also available at 272-2800. If you call for an appointment, please be clear you are a medical student.)
- Cheri Koinis, PhD, CKoinis@salud.unm.edu, Psychologist, (also available at 272-3898)

Meetings with Dr. Lawrence, Dr. Dunn, and Dr. Koinis are all confidential and free of charge. Additional resources are available at:
http://som.unm.edu/education/md/omsa/wellness.html .

Office of Medical Student Affairs
Phone: (505) 272-3414
Location: Reginald Heber Fitz Hall, room 107
Leadership: Dr. Sheila Hickey, MD Associate Dean Student Affairs
Dr. Teresa Vigil, MD, Assistant Dean Student Affairs
The Office of Medical Student Affairs is the primary student services provider for UNM's medical students. OMSA is home to academic support services including advisement and mentoring, financial aid and scholarships, enrollment management and event coordination. OMSA provides administrative support for the Learning Communities program, the Committee for Student Promotion and Evaluation, and the Student Appeals Committee.

Learning Strategies

Am I A Good Learner?

Effective learning refers to understanding concepts deeply, not just superficial memorization, and allowing for retrieval of what is learned after a long period of disuse. Learning causes changes in the brain through the construction and expansion of neural networks. There is a considerable body of research by cognitive psychologists and neuroscientists that informs strategies for learning. Effective learning pays attention to how knowledge is *encoded*, how it is *consolidated* through repeated use that strengthens and expands the neural networks, and how it is *retrieved* for later use, which actually changes the memory of the knowledge. Some of the approaches for effective learning are hard and that's because the biological changes that result in learning require hard work. Short cutting by using easy-to-use learning and studying methods may give the illusion of learning but many of these methods have been shown inferior for generating deep, lasting understanding.

You learn more when you're "doing" rather than "listening." The first step to effective learning is how knowledge is encoded in your brain. Passively reading or listening to a lecture is the least effective encoding process for most learners. So, if your instructor requires you to be actively involved in class (e.g., small-group learning with problem-based learning or team-based learning approaches, worksheets, discussions, "clicker" questions) this is *not* because she or he is shirking responsibility for teaching. Education is about learning and you will learn more when you try things out on your own, discuss and debate with peers, and incorporate ideas and learning approaches from your class mates and the instructor.

Reading and problem solving before class improves learning during class. Do you prefer to read the text and attempt questions and problems related to the text *after* hearing the professor

lecture? Did you know that you'll likely learn more if you instead tackle reading the unfamiliar text and trying new problems and questions *before* class? Knowledge is encoded more strongly when it is at least partly generated by the learner. Even if you struggle to understand the text or pre-class problems you will do better on subsequent tests because your brain has already generated familiarity with the concepts and worked to understand. In-class learning through lecture and activity causes you to retrieve what you learned in the pre-class assignment and to consolidate your understanding. If you find yourself reading through text, highlighting and underlining lots of words, but unable to explain what you've read then you should probably check out methods for active reading for elaboration that encodes what you're reading into memory (For example: http://gradschool.about.com/cs/reading/a/sq3r.htm).

Quizzes are for learning, not just for earning a grade. Do you ignore quizzes that aren't graded or aren't worth many points? Do you take quizzes seriously primarily because you want a good grade? Do you think that your professor administers quizzes as an incentive to keep up on your work? Instead, consider quizzes as learning tools rather than point-earning opportunities or time wasters. At the very least, quizzes tell you what you do know and don't know so that you can shore-up knowledge deficiencies before taking high-stakes tests. But, even more importantly, quizzing generates learning. Every time you retrieve knowledge from your brain and think about it – which is what happens during a quiz – you improve your memory and understanding. The act of retrieving a memory changes the memory, which makes that information easier to retrieve in the future. If your instructor doesn't provide you with quizzes, then make up your own. Ask and answer questions about what you're learning in text, class, clinic, and lab. Even if you do poorly on a quiz, you will likely perform better on the upcoming test, especially if you've explored what you got wrong and why.

Spacing and "changing up" your studying is better than cramming. Do you focus your studying into a short time before a test? Do you focus your study on one topic until you feel you've mastered it before moving on to another topic? The research is clear: These common approaches to studying are less effective than if you space your studying over days, weeks, or months, especially if you alternate study of different subjects or topics during single study sessions. Learning is improved every time you retrieve information, so the more you retrieve and think about your growing knowledge, the deeper and more permanent the learning will be. Although it may seem challenging and even confusing at first to alternate the subjects that you are studying, that challenge is an example of a "desirable difficulty" that enhances overall, long-term learning because your brain is working harder to keep things straight.

Re-reading the textbook and your notes is the least effective way to prepare for a test. Renewing exposure to knowledge sources is not the same as retrieving knowledge from memory and manipulating it in new ways in order to consolidate the memories. Re-reading is easy and can give the illusion of learning because you do develop increasing fluency with what is written in the text or in your notes. However, the research shows that self-testing (including retaking quizzes and homework provided by your instructor) enhances learning by retrieval of relevant memories. Making new notes that link ideas from your learning experiences, perhaps by

drawing concept maps or other diagrams and charts that connect these ideas, is a form of elaboration of knowledge that is also strengthening and growing the linkages between the neurons in your brain.

Reflection on your learning makes you a better learner. Do you talk to yourself about what you're learning? If so, that inward look is an example of reflection. It is always important to monitor the learning process so that you know what information has been adequately encoded, whether the understanding has been consolidated, and if you are able to retrieve and manipulate past memories alongside newly acquired knowledge. After a class session or completing a reading assignment consider answering these questions in your notebook or journal: *What are the key ideas? What are some examples of these ideas? How does what I just learned relate to what I already knew? What remains unclear to me? What would I like to learn more about and why?* After a test or quiz, consider answering these questions in your notebook or journal: *What went well? What could have gone better? What do I need to do to learn for better mastery so that I get better results the next time?*

Reflection encodes knowledge in different ways than how you initially received it through the external stimuli of lecture, reading, or quizzing. Reflection also prompts retrieval of prior knowledge. And, reflection is important for monitoring your learning so that you are providing your own insights into where your strengths and weaknesses lie.

Suggestions for Effective Note-Taking

Students' notes, created in class or while studying course material, are an important tool for learning. Good note-taking practices can lead to efficient study practices, better course outcomes and improved retention of content beyond a course's conclusion.

Take generative notes. Do not write every word the instructor says or that you read. This is transcription and takes too much cognitive effort at the expense of comprehending what you are hearing or reading. Rather take notes in your own words. This means you will actively think about lecture content (i.e., comprehension), which may facilitate retrieval of information from lectures or texts during review sessions. By comparison, taking notes verbatim or transcribing every word the instructor says is maladaptive as it dedicates too many cognitive resources towards production, reducing the effectiveness of learning during the note-taking process. Importantly, notes should be made brief, yet understandable, reflecting your comprehension of the material and providing you with a condensed resource for future review. One suggested method is the Cornell Notes approach:
http://coe.jmu.edu/learningtoolbox/cornellnotes.html

Always ask yourself why. When you are writing your notes, or the summary if you are using the Cornell Notes method, do not just write A is B because that is what it says in the lecture or

text book. Ask why A is B? Here are a couple of examples:

(1) Your lecture says "the adrenal medulla releases epinephrine and norepinephrine"; your notes should say "the adrenal medulla releases epinephrine and norepinephrine, because it is simply a modified post-ganglionic sympathetic ganglion".
(2) Your lecture says "Antibiotic therapy can cause C. Diff"; your notes should say "Antibiotic therapy can cause C. Diff, because the antibiotic is killing the gut bacteria that usually keep C. Diff in check."

Carefully consider how you want to take notes. Specifically, think about whether you would prefer taking notes with pen and paper or with a laptop, as there are costs and benefits to each. Given the constraints on handwriting (e.g., fewer words per minute than typing) you are forced to be more selective in what you write down (which may assist with taking notes in your own words), but makes you at risk for missing important points during the session. However, there is a temptation to transcribe content verbatim with a laptop, and you may find yourself recording more information in your notes than you would otherwise (making your notes too dense and a less effective study aid). There is also the additional temptation to multi-task while taking notes with a laptop.

Review early and often. Review or complete your notes shortly after the session—clarify any questions or ambiguities you may have lingering from the session, either by consulting peers, instructors, course materials, etc. Write down any questions or important keywords in margins, and write brief summaries of your notes' contents at the bottom of each page in your own words (Cornell Notes are ideal for this). Do not go to sleep if you have not reviewed the day's material and finished taking your notes. Do not wait until the weekend to get caught up. Many if not all of the courses will have Monday morning quizzes over the prior week(s) material. The weekend is for reviewing and resting.

Suggestions on How to Study Gross Anatomy

The study of gross anatomy requires you to learn a lot of information, apply that information to various situations, and be able to visually identify structures and work effectively as a member of a team.

How to approach Laboratory Learning:

- Preview each day's work by reading the dissection guide ahead of time.
- Review the day's work, either after lab or by using the atlas and dissection guide at home. Make notes of things you do not understand and structures you have not seen. Ask classmates at other tables to show you structures you might not have on your donor and be sure to clarify things you do not understand as soon as possible.
- Be sure to look at other donors as well as your own. There are many normal variations that occur and you should be aware of individual differences.
- Get a clear mental image of the structures you are dissecting. Compare structures on your

donor with pictures in the atlas and with the same structures on different cadavers.

- Discuss and synthesize information while dissecting.
- Quiz each other both on straight identification of the structures and on facts pertaining to the structures. For example, you might ask the following questions. "What is this structure?" "What does it do?" "What innervates it?" "What would happen if the innervation were lost?" "What landmarks could help identify it either for a lab practical exam or patient physical exam?"
- Don't be afraid to ask your partners to explain something to you that you really don't understand after giving it your best effort. Remember that if you really want to learn something - as opposed to just memorizing it - teach it to someone else!
- Ask for clarification from faculty. Several faculty members and TAs are available during lab time, make use of their expertise. Call them over to your table and explain what you're doing. Let them question you, this helps you "go deeper" into understanding the material.
- Talk to a faculty member or visit the OARS office early in the block if you're feeling overwhelmed, or having problems with coordinating your study

Thoughts from Michael Young, Medical Student

Michael Young is a high achieving fourth-year medical student at Georgia Regents University who pulled himself up from rock bottom by changing the ways he studies.

Young entered medical school without the usual foundations of premed coursework. His classmates all had backgrounds in biochemistry, pharmacology, and the like. Medical school is plenty tough under any circumstances, but in Young's case even more so for lack of a footing.

The scope of the challenge that lay before him became abruptly evident. Despite his spending every available minute studying his coursework, he barely eked out a 65 on his first exam. "Quite honestly, I got my butt kicked," he says. "I was blown away by that. I couldn't believe how hard it was. It was nothing like any of the schooling I had done before. I mean, you come to class, and in a typical day you get about four hundred PowerPoint slides, and this is dense information." Since spending more time studying wasn't an option, Young had to find a way to make studying more effective.

He started reading empirical studies on learning and became deeply interested in the testing effect. That's how we first learned of him: He emailed us with questions about the application of spaced retrieval practice in medical school setting. Looking back on that stressful period, Young says, "I didn't just want to find somebody's opinion about how to study. Everybody has an opinion. I wanted real data, real research on the issue."

So what did he change? He explains it this way:

I was big into reading, but that's all I knew how to do for studying. I would just read the material and I wouldn't know what else to do with it. So, if I read it and it didn't stick in my memory, then I didn't know what to do about that. What I learned from reading the research (on learning) is that you have to do something beyond just passively taking in the information. Of course, the big thing is to figure out a way to retrieve the information from memory, because that is what you are going to be asked

to do on the test. If you can't do it while you're studying, then you're not going to be able to do it on the test.

He became more mindful of that when he studied. "I would stop. 'Okay, what did I just read? What is this about? I'd have to think about it. 'Well, I believe it happens this way: The enzyme does this, and then it does that.' And then I'd have to go back and check if I was way off base or on the right track."

The process was not a natural fit. "It makes you uncomfortable at first. If you stop and rehearse what you're reading and quiz yourself on it, it just takes a lot longer. If you have a test coming up in a week and so much to cover, slowing down makes you pretty nervous." But the only way he knew of to cover more material, his established habit of dedicating long hours to rereading, wasn't getting the results he needed. As hard as it was, he made himself stick to retrieval practice long enough to at least see if it worked. "You just have to trust the process, and that was really the biggest hurdle for me, was to try to get myself to trust it. And it ended up working out really well for me."

Really well. By the time he started his second year, Young had pulled his grades up from the bottom of his class of two hundred students to join the high performers, and he has remained there ever since.

Young spoke with us about how he adapted the principles of spaced retrieval practice and elaboration to medical school, where the challenges arise both from the sheer volume of material to be memorized and from the need to learn how complex systems work and how they interrelate with other systems. His comments are illuminating.

*On deciding what's important: "*If it is lecture material and you have four hundred PowerPoint slides, you don't have time to rehearse every little detail. So you have to say, 'Well this is important, and this isn't.' Medical school is all about figuring out how to spend your time."

On making yourself answer the question: "When you go back and review, instead of just rereading you need to see if you can recall the learning. Do I remember what this stuff was about? You always test yourself first. And if you don't remember, then that's when you go back and look at it and try again."

On finding the right spacing: "I was aware of the spacing effect, and I knew that the longer you wait to practice retrieval the better it is for the memory, but there's also a trade-off with how successful you are when you try to recall it. When you have these long enzyme names, for example, and this step-by-step process of what the enzyme is doing, maybe if you learn ten steps of what the enzyme is doing, you need to stop and think, can I remember what those ten steps are? Once I found a good strategy for how much to space practice and I started seeing consistent results, it was easy to follow from there because then I could just trust the process and be confident that it was going to work."

On slowing down to find the meaning: Young has also slowed down the speed at which he reads the material, thinking about meaning and using elaboration to better understand it and lodge it in memory. "When I read that dopamine is released from the ventral tegmental area, it didn't mean a lot to me." The idea is not to let words just "slide through your brain." To get

meaning from the dopamine statement, he dug deeper, identified the structure within the brain and examined images of it, capturing the idea in his mind's eye. "Just having that kind of visualization of what it looks like and where it is [in the anatomy] really helps me remember it." He says there's not enough time to learn everything about everything, but pausing to ask why or to make it meaningful helps it stick.

Young's impressive performance has not been lost on his professors or his peers. He has been invited to tutor struggling students, an honor few are given. He has been teaching them these techniques, and they are pulling up their grades.

(Excerpt from: Brown, P.C., Roediger III, H.L., McDaniel, M.A. (2014) *Make It Stick, The Science of Successful Learning*: Harvard University Press, 336 p)