

Doctor of Clinical Laboratory Sciences

The Doctorate in Clinical Laboratory Science (DCLS) is the terminal practice degree for the Clinical Laboratory Science profession. This degree provides an opportunity for advanced practice in multiple venues including clinical institutions, reference laboratories, physician practices, industry, public health agencies, government facilities, and academic institutions. Clinical Laboratory Science professionals holding the DCLS will provide a critical interface between practice, research, and health care policy. They will assure the effective and appropriate utilization of laboratory tests and information by eliminating unnecessary tests and ordering tests that should have been ordered but were not. This will result in decreased costs, earlier diagnosis, and improved patient outcomes.

The three-year, full-time program consists of a minimum of 76 credit hours divided between advanced theory courses (core curriculum), research, and a one-year clinical residency. Core course delivery is primarily online but may include face-to-face options for specific courses. The core curriculum may be completed entirely as a distance learning program and on a full-time or part-time basis. However, the residency component requires full-time attendance at a clinical affiliate.

The core curriculum is designed to advance the foundational knowledge of the bachelor's-level medical laboratory scientist in the areas of hematology, clinical chemistry, clinical microbiology, immunohematology, clinical immunology, and molecular diagnostics. The core curriculum also includes clinical correlations, evidence-based medicine, and interprofessional practice. Information gained from this course work is integrated with knowledge from other disciplines in health care such as health policy and management, pharmacology, health care education, public health and epidemiology, and advanced pathophysiology.

Research is a component of this program and students will be expected to complete research projects over the course of the program culminating in a hypothesis-driven capstone project suitable for publication. Research projects will advance practice and knowledge in clinical laboratory medicine, such as the development and implementation of diagnostic and interpretive algorithms, clinical practice guidelines, collaborative interprofessional patient care, and evaluation of pre-analytical, analytical or post analytical components of laboratory testing. Examples of DCLS research project topics include laboratory stewardship, patient care initiatives, evidence-based practice initiatives; outcomes-based research, assay interference, and evaluating implementation of new instrumentation/assays.

The one-year clinical residency will provide immersion in the workings of the health care system by integrating the resident into patient care alongside physicians, nurses, pharmacists, and other health care professionals in clinical practice environments at program affiliates. During the residency, the students will work with management, laboratory staff, physicians, nurses, and other members of the healthcare team to provide guidance in laboratory utilization and interpretation thereby optimizing patient outcomes. The residency focuses on laboratory test selection and result interpretation. In addition to the direct learning by the resident, he or she can educate the patient and the other members of the health care team on the proper utilization of lab tests, correct specimen requirements, and interfering factors affecting results.

Graduates of this program will be prepared to act as consultants to health care providers, serve as laboratory directors, educate patients and health

care providers, perform and disseminate research on evidence-based practice and test utilization, and enter academic positions.

The DCLS curriculum addresses the competencies established for the profession by the American Society for Clinical Laboratory Science Doctorate in Clinical Laboratory Science Oversight Committee and NAACLS accreditation guidelines for the DCLS.

Admission to the doctorate in clinical laboratory science program is a competitive application process. Applications are submitted online. Applications and supporting materials are reviewed, and qualified applicants are invited for a personal interview. Detailed instructions on how to apply are posted on the doctorate in clinical laboratory science program (<https://www.kumc.edu/school-of-health-professions/academics/departments/clinical-laboratory-sciences/academics/doctorate-in-cll-program/how-to-apply.html>) website. Students are admitted for the fall semester only. Applications for the fall semester must be received by March 1 for first consideration.

In order to be considered for admission into this program, the following are required:

Completed prerequisite course work

- Bachelor's degree in a life science (e.g., biochemistry, biology, cell biology, clinical laboratory science, microbiology, molecular biosciences etc.) must be completed prior to enrollment in the program.
- A NAACLS-accredited MLS/MT program must be completed (or equivalent). Applicants holding MLS(ASCP) certification through Route 2 are eligible to apply if having completed a NAACLS-accredited or military MLT program.

Grade point average

- Cumulative undergraduate grade point average of 3.00 on a 4.00 scale is required.
- For applicants who transferred credits into their Bachelor's degree, the Office of Graduate Studies will take those credits into consideration for the cumulative Bachelor's GPA.
- Applicants with a GPA below 3.00 may be considered for admission on a case-by-case basis.

Required credentials

- Professional certification as a generalist from the American Society of Clinical Pathology Board of Certification is required: MLS(ASCP)CM or MLS(ASCPi)CM. MLS(ASCP) is accepted with proof of continuing education.

Professional work experience

- A minimum two years of post-certification, full-time experience in a U.S. clinical laboratory as a medical laboratory scientist (or comparable role) is required at the time of application. Preference will be given to those with experience as a generalist or who have worked in multiple areas of the clinical laboratory. Applicants with less than two-years of full-time experience may be considered for admission on a case-by-case basis.
- The department will evaluate work experience and determine if the work experience criteria are met for each applicant.

Health and physical requirements

- Good physical and mental health are essential. Physical or other disabilities are evaluated on a case-by-case basis by the program and by the Office of Equal Opportunity and Academic Compliance. Please review the program's technical standards (<https://www.kumc.edu/school-of-health-professions/academics/departments/clinical-laboratory-sciences/academics/doctorate-in-cls-program/technical-standards.html>) for details.
- Physical examinations are required prior to the time of registration for classes at KU Medical Center.
- All students are required to carry health insurance. KU Medical Center offers a health insurance policy for eligible students. Selected for the Kansas Board of Regents institutions by the State of Kansas, this plan is offered through Student Health Services at KU Medical Center and is underwritten by UnitedHealthCare Student Resources. For information about the policy, please visit www.uhcsr.com/kumc (<http://www.uhcsr.com/kumc/>).

Students exclusively taking courses online are not eligible to enroll in the Basic Student Plan through UnitedHealthCare.

Background check/drug screening

- The Joint Commission requires all incoming students to pay for a background check and provide the report to the university. This one-time fee must be paid directly to the company performing the background investigation. This requirement only applies to students officially admitted into the program. A drug screen may also be required by each clinical residency site the student utilizes during the program. More: School of Health Professions background check and drug screening. (<http://www.kumc.edu/school-of-health-professions/background-checks-and-drug-screening-for-students.html>)

English language proficiency

All applicants, regardless of citizenship or residency status, are required to have command of the English language. Proof of English language proficiency may be required through the TOEFL or IELTS testing systems, a personal interview, the personal goals statement or other methods.

- Internet-based TOEFL minimum requirements: at least 23 or higher on the reading and listening sections; a score of 5.0 or 23 or higher on the writing section; a score of 26 or higher on the speaking section.
- IELTS minimum requirements: overall band score of 7.5 and no part score lower than 7.0.

International Students

An applicant is considered an international student if he or she requires a visa, or currently resides in the U.S. with non-immigrant status, or currently resides in the U.S. while applying for permanent residency. Additional requirements and documentation are required for international students to become eligible for KU programs. Please review the information for international students (<http://www.kumc.edu/school-of-health-professions/information-for-international-applicants.html>) before applying.

Applicants will be assessed based on these requirements. After an applicant has been admitted, a program may defer an applicant's admission for one year after which time the applicant must submit a new application. Admission requirements are subject to change. In most

cases, use the catalog of the year student entered the program. *Other years' catalogs*».

DCLS Core Course Descriptions

DCLS 800. DCLS Advanced Topics. 1 Credits.

Seminar course that addresses topics and issues relevant to DCLS clinical practice, including ethical and social issues in healthcare practice, health informatics, and communication techniques needed for interaction with healthcare colleagues and patients. Repeatable. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 802. Principles of Healthcare Education. 3 Credits.

This course will address various aspects of teaching in healthcare settings. This includes educating patients and their families, educating other healthcare professionals, and the more formal area of undergraduate and graduate education. Education theory, pedagogical methods, educational resources, learning objectives, and evaluation techniques applicable to each type of educational situation will be addressed. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 805. Advanced Molecular Diagnostics. 2 Credits.

This course focuses on the enhancement of scientific and technical knowledge in nucleic acid-based testing for the diagnosis of acquired and hereditary genetic disorders, and infectious diseases. Topics include an in-depth review of the theory of molecular techniques and the application of these techniques in inherited disorders, oncology, infectious disease, pharmacogenetics, histocompatibility, identity determination, and genomics. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 815. Research Methods in Clinical Laboratory Sciences. 2 Credits.

A discussion of research methods used in clinical laboratory sciences, with an emphasis on selecting and applying appropriate research designs. Includes an overview of the research methods and various approaches in current use in clinical laboratory science; focused on research question formulation; internal and external validity of research; variable measurement and reliability, and generalizability of findings. Specific approaches covered include non-experimental, experimental and quasi-experimental designs, epidemiologic methods (e.g., cohort and case-control studies), survey research, and qualitative research. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 820. Evidence Based Practice. 3 Credits.

Evidence-Based Practice (EBP) encompasses Evidence-Based Medicine and Evidence-Based Laboratory Medicine. EBP is a problem-based approach to decision making using research evidence combined with clinical expertise, the patient's values, circumstances, and the clinical context. This course addresses the historical development of EBP, why using EBP in clinical decision making improves patient care, when and how to implement and use EBP in clinical decision making, and how to discuss the EBP finding with patients, family members, and other healthcare practitioners. Evaluating research studies for their applicability to EBP and designing research studies based on clinical evidence focused on laboratory testing will make up most of the course content, activities, and assignments. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 830. Advanced Clinical Chemistry. 3 Credits.

This course focuses on in depth physiology and pathophysiology together with the principles of current and emerging chemistry tests.

Emphasis on the correlation between chemistry tests and disease states, interpretation and limitations of chemistry test results. Current clinical chemistry literature, clinical scenarios, case studies, and advanced laboratory practice issues will be used to enhance knowledge and skills. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 836. Advanced Hematology. 3 Credits.

This course focuses on enhancement of scientific and technical knowledge in hematology and hemostasis to consult with other healthcare practitioners on the selection of screening and diagnostic tests for hematological disorders, interpretation of results, and recommendations for follow-up testing. Topics to be investigated include physiology and regulation of the hematopoietic system and hemostasis, and the genetic, molecular and cellular mechanisms underlying the pathophysiology of selected hematological disorders such as anemias, leukemias, lymphomas, and disorders of hemostasis with additional focus on utilization of appropriate hematology, hemostasis, and molecular diagnostic tests, and reducing turn-around time. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 838. Advanced Immunology and Transplant. 3 Credits.

This course focuses on enhancement of scientific and technical knowledge in clinical immunology and transplantation in order to consult with other healthcare practitioners on clinical applications and diagnostic and therapeutic testing of immune-mediated diseases. Topics include autoimmunity, hypersensitivity, immunotherapy and immunotoxicology, transplantation and HLA testing/compatibility, cancer immunology and immunodeficiency. This course also includes test methodologies in cellular, humoral, and molecular immunology, selection and interpretation of test results, and recommendations for follow-up testing for patient monitoring. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 842. Advanced Clinical Microbiology. 3 Credits.

Course Description: This course focuses on enhancement of scientific and technical knowledge in clinical microbiology necessary for consultation with other healthcare practitioners for (i) the selection of screening and diagnostic tests for suspected infectious diseases, (ii) interpretation of results, and (iii) recommendations for follow-up testing. Topics to be investigated include utilizing molecular diagnostic tests, antimicrobial susceptibility testing and resistance mechanisms, bioterrorism, biofilms, opportunistic and emerging infections, utilization of appropriate microbiology tests, evidence based practice in clinical microbiology, and reducing turn-around time. Current scientific literature, clinical scenarios, case studies, and advanced laboratory practice issues will be used to enhance knowledge and skills. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 844. Advanced Immunohematology. 3 Credits.

This course will explore advanced blood banking theory and transfusion medicine concepts pertaining to basic-to-advanced serological testing techniques, blood product utilization, molecular immunohematology testing methods, quality assurance, and other relevant topics. Learners will be re-introduced to specialized blood banking procedures including (but not limited to) the following: ABO/Rh, antibody screens, antibody identification, fetal screen, elutions, phenotyping, and crossmatching. Using case studies and discussion, learners will correlate laboratory data to clinical disease processes encountered in transfusion medicine. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 851. Clinical Correlations I. 3 Credits.

Course Description: This course will correlate clinical presentation and laboratory testing as it relates to physiological changes associated with select diseases of major organ systems (e.g., endocrine, muscle, cardiovascular, respiratory, renal, gastrointestinal, immune, nervous, and reproductive). Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program or instructor permission.

DCLS 852. Clinical Correlations II. 3 Credits.

This course will complement DCLS 851 Clinical Correlations I and will correlate clinical laboratory testing as it relates to physiological changes associated with patient symptomatology (e.g., chest pain, shortness of breath, unresponsiveness, fever of unknown origin, jaundice) and treatment in a consultation model. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program or instructor permission.

DCLS 880. Principles of Interprofessional Education and Practice Theory. 1 Credits.

An introductory course to core competencies in interprofessional education and practice for healthcare teams including roles and responsibilities, values and ethics, teamwork, communication, and collaborative practice as it relates to the improvement of patient safety outcomes and the provision of quality patient care. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 890. Advanced Laboratory Operations. 3 Credits.

This course will explore laboratory quality, utilization, accreditation, regulation, and management topics. Core course content explores the selection, implementation, strengths, and weaknesses of appropriate quality assurance programs to maintain desired quality goals. All aspects of laboratory services will be explored to enhance consultative skills that will be applied in the clinical residency. The use of practice guidelines, critical or clinical pathways, algorithms and reflex testing, direct access testing, evidenced-based practice, and outcomes measurements, as well as initiatives to change the practice of laboratory services in all phases (pre-analytical, analytical, and post analytical) are covered. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program, or consent of instructor.

DCLS 899. Independent Study. 1-3 Credits.

Faculty-guided, student-directed individualized study for students enrolled in the DCLS program who need additional enrollment associated with their plan of study. The specific course requirements are to be described in the Independent Study proposal form to be completed by the student and approved by the faculty mentor and DCLS Program Director prior to enrollment. Can be repeated for credit. Prerequisite: Admission into the Doctorate in Clinical Laboratory Science program.

The Doctorate in Clinical Laboratory Science (DCLS) program at the University of Kansas is designed to prepare certified medical laboratory scientists for advanced practice in multiple venues including clinical institutions, reference laboratories, physician practices, industry, public health agencies, government facilities, and academic institutions. Course work is divided between advanced theory courses ("Core Curriculum"), research, and clinical residency. The DCLS curriculum addresses the competencies established for the profession by the American Society for Clinical Laboratory Science Doctorate in Clinical Laboratory Science Oversight Committee and NAACLS accreditation guidelines for the DCLS.

Degree Requirements:

- On a full-time basis, degree requirements are normally completed within 3 years of admission to the program, although a maximum of 8 years is allowed. The core curriculum can be complete on a part-time

basis, but the DCLS Research and Clinical Residency components require one year of full-time enrollment.

- Cumulative grade-point average (GPA) of at least a 3.0 for all KU graduate coursework.
- Successful completion of a minimum of 76 credit hours.
- Successful completion of the University's Research Skills and Responsible Scholarship requirement before proceeding to the DCLS comprehensive exam.
 - Successful completion of DCLS 815 (Research Methods in Clinical Laboratory Sciences) and DCLS 820 (Evidence Based Practice) meets the Research Skills requirement.
 - Successful completion of PRVM 853 (Responsible Conduct of Research) or PTRS 807 (Ethics in Health Care) meets the Responsible Scholarship requirement.
- Successful completion of the DCLS comprehensive examination. Prior to starting the clinical residency, a comprehensive examination is required of all degree candidates. Students will demonstrate their (i) command of the clinical laboratory science body of knowledge, (ii) ability to analyze data, and (iii) expertise in the broad scope of clinical practice. Students must be in good academic standing (i.e. hold a minimum 3.0 cumulative GPA) to be eligible for the comprehensive examination. The examination must be completed prior to enrollment in residency courses with a minimum score of 80% to be considered successful.
- Successful completion of the DCLS Research Project requirement. A prospectively planned and approved translational research project which is advisor-guided, student-directed, and designed to support and enhance students' ability to apply their graduate knowledge and achieve tangible outcomes. The DCLS Research Project is a three-course series (DCLS 901, DCLS 902, DCLS 903) that includes all aspects of a translational research project, including the planning, data collection, analysis/interpretation of results, preparation, and presentation of the research project, both oral and written. Research projects will advance practice in clinical laboratory medicine, such as the development and implementation of diagnostic and interpretive algorithms, clinical practice guidelines, and collaborative interprofessional patient care.
- Successful completion of the DCLS Clinical Residency requirement. A three-course series (DCLS 911, DCLS 912, DCLS 913), this year-long clinical residency is designed to develop the DCLS professional to meet national professional responsibilities. Residency places the student in clinical practice environments at program affiliates. During the residency, the students will work with management, laboratory staff, physicians, nurses, and other members of the healthcare team to provide guidance in laboratory utilization and interpretation thereby optimizing patient outcomes. Residency is provided in structured clinical rotations occurring at clinical affiliates. Skills and knowledge will be evaluated through competency-based assessments and portfolio development. The portfolio will contain documentation of experiences and work products developed during the residency rotations. This may include de-identified summaries of consultations, papers and abstracts published or submitted, PowerPoint presentations, method evaluation data and/or written procedures from utilization projects.
- Successful completion of the DCLS Capstone requirement. The capstone is completed during the final semester of the program and consists of a written and an oral examination. The written component consists of a manuscript suitable for publication based on the research requirement described above. The oral examination is a defense of the manuscript and can include questions regarding

general knowledge of clinical laboratory science concepts and applications.

- Enrollment in a minimum of one (1) credit hour the semester the student will graduate.
- Successful completion of the following courses:

Core Curriculum

Code	Title	Hours
DCLS 800	DCLS Advanced Topics	1
DCLS 802	Principles of Healthcare Education	3
DCLS 805	Advanced Molecular Diagnostics	2
DCLS 815	Research Methods in Clinical Laboratory Sciences	2
DCLS 820	Evidence Based Practice	3
DCLS 830	Advanced Clinical Chemistry	3
DCLS 836	Advanced Hematology	3
DCLS 838	Advanced Immunology and Transplant	3
DCLS 842	Advanced Clinical Microbiology	3
DCLS 844	Advanced Immunohematology	3
DCLS 851	Clinical Correlations I	3
DCLS 852	Clinical Correlations II	3
DCLS 880	Principles of Interprofessional Education and Practice Theory	1
DCLS 890	Advanced Laboratory Operations	3
BIOS 704	Principles of Statistics in Public Health	3
HP&M 810	The Health Care System	3
PHSL 843	Physiology of Disease	3
or NRSRG 812	Advanced Pathophysiology	
PRVM 800	Principles of Epidemiology	3
PRVM 853	Responsible Conduct of Research	1
or PTRS 807	Ethics in Health Care	
PTRS 854	Pharmacology	2

Research

Code	Title	Hours
DCLS 901	DCLS Research I	2
DCLS 902	DCLS Research II	3
DCLS 903	DCLS Research III	3
DCLS 999	DCLS Capstone	1

Practicum

Code	Title	Hours
DCLS 911	Clinical Residency I	4
DCLS 912	Clinical Residency II	5
DCLS 913	Clinical Residency III	5

** DCLS 800 will be taken during each residency semester.*

Degree requirements and course descriptions are subject to change. Any courses taken as an equivalent must be approved by the Graduate Director and the Office of Graduate Studies. In most cases, use the catalog of the year student entered the program. Other years' catalogs» (<http://catalog.ku.edu/archives/>).

The DCLS is a minimum 76 credit hour program designed to be completed in a three year time frame if enrolled full time (see program

progression below, part-time options are available). Course work is divided between the "Core Curriculum" (advanced theory courses) completed in the first two years of full-time study, and one full year of full-time clinical residency (during which research and residency courses are completed).

A recommended plan of study for full-time students in the DCLS program is shown below.

Year 1

Fall	Hours Spring	Hours Summer	Hours
DCLS 815	2 DCLS 842	3 PRVM 800	3
DCLS 830	3 DCLS 844	3 PTRS 807 (or PRVM 853 during Year 1, Fall semester)	1
DCLS 836	3 DCLS 851	3	
BIOS 704	3 PHSL 843 or NRSG 812	3	
	11	12	4

Year 2

Fall	Hours Spring	Hours Summer	Hours
DCLS 802	3 DCLS 820	3 DCLS 800	1
DCLS 805	2 DCLS 852	3 DCLS 901	2
DCLS 838	3 DCLS 890	3 DCLS 911	4
DCLS 880	1 PTRS 854	2	
HP&M 810 (online section available)	3		
	12	11	7

Year 3

Fall	Hours Spring	Hours
DCLS 800	1 DCLS 800	1
DCLS 902	3 DCLS 903	3
DCLS 912	5 DCLS 913	5
	DCLS 999	1
	9	10

Total Hours 76

Students enroll in DCLS 800 during each clinical residency semester.

Graduates of the clinical laboratory science doctoral program must have the knowledge and skills to function in a broad variety of clinical laboratory and patient care environments, including hospitals, reference, public health, and physician office settings. Therefore, the following abilities and expectations must be met by all students in the program.

Essential Observational Requirements

1. Read and comprehend text, numbers, and graphs displayed in print and other visual displays.
2. Perform comparative observations of text, movement, shapes, graphs, colors, etc.
3. Observe and respond to subtle cues of individual's moods, temperament, and social behavior.
4. Observe, learn from, and analyze medical record content, including discernment and use of clinical and administrative data displayed within the medical record.

5. Observe, learn from, and analyze statistical, financial, and reimbursement data, including utilizing spreadsheets, software, databases, and performing mathematical calculations.
6. Observe, learn from, and analyze class demonstrations and experiences in disciplines relevant to Clinical Laboratory Sciences that include but are not limited to information management, biochemistry, physiology, statistics, clinical correlations, and research methodology.

Essential Movement Requirements

1. Perform actions requiring coordination of both gross and fine muscular movement, equilibrium and use of senses.
2. Move freely and safely about healthcare settings (hospitals, patient rooms, clinics, laboratory, etc.).
3. Travel to sites both on and off campus involved in coursework and residency.
4. Perform moderately taxing continuous physical work over several hours.
5. Use an electronic keyboard to generate, calculate, record, evaluate, and transmit information.
6. Prepare assignments, both written and on-line.
7. Deliver public presentations to large and small audiences.

Essential Communication Requirements

1. Read, interpret, and comprehend technical and professional materials (e.g., textbooks, journal articles, handbooks, instruction manuals, and patient healthcare records).
2. Be able to share and to elicit information from patients, healthcare providers, peers, and research collaborators verbally and in a recorded format.
3. Assimilate information to prepare papers, produce reports, and complete documentation for patient care and research purposes.
4. Effectively, confidently, sensitively, and confidentially communicate with patients, laboratory staff, and healthcare providers regarding laboratory test selection, interpretation, and follow-up.
5. Communicate effectively (speaking, writing, typing, graphics, or telecommunication) with faculty, students, laboratory staff, patients, and other healthcare professionals.
6. Take paper and computer examinations.

Essential Intellectual Requirements

1. Understand and perform measurements, calculations, synthesis, analysis, reasoning and problem solving.
2. Participate in research activities involving the laboratory or patient oriented research activities.
3. Possess sufficient judgment to recognize and correct performance deviations.

Essential Behavioral and Social Requirements

1. Manage the use of time and be able to systematize actions in order to complete academic, professional and technical tasks within realistic constraints.
2. Possess the emotional health necessary to effectively employ intellect, act ethically, and exercise appropriate judgment.
3. Demonstrate appropriate affective behaviors and mental attitudes as to not jeopardize the emotional, physical, mental and behavioral

safety of other individuals with whom there is interaction in academic clinical, and residency settings.

4. Possess the mental and emotional rigor to maintain relationships and demonstrate respect to all people, including students, faculty, patients, and other healthcare professionals at residency settings, without showing bias or preference on the basis of race, color, age, sex, religion or creed, national origin or ancestry, gender expression, gender identity, disability, veteran status, sexual orientation or genetic testing & screening.
5. Adapt to professional and technical change, being flexible and creative.
6. Use appropriate language.
7. Demonstrate empathy when appropriate.
8. Work effectively in inter-professional teams.
9. Demonstrate an understanding of the rationale and justification for one's performance.
10. Demonstrate attention to detail and flexibility to function in a clinical and/or research setting.
11. Recognize potentially hazardous materials, equipment, and situations and proceed safely in order to minimize risk of injury to self and nearby individuals.
12. Practice honesty, compassion, and responsibility.
13. Be forthright about errors or uncertainty.
14. Critically evaluate one's own performance, accept constructive criticism, and look for ways to improve.
15. Critically evaluate the performance of students, patients, and healthcare providers, tactfully offering constructive comments.
16. Provide professional and technical services while experiencing the stresses of heavy workloads (i.e., large number of tasks to complete in a limited amount of time), task-related uncertainty (i.e., ambiguous test-ordering, ambivalent test interpretation), emergent demands (i.e., "stat" test orders, interaction with other members of the healthcare team), and a distracting environment (i.e., high noise levels, crowding, complex visual stimuli).