Pathologists' Assistant, M.H.S.

Degree Offered

• Master of Health Science (MHS)

The Profession

A pathologists' assistant is a healthcare professional who is qualified through academic and practical training to provide services in anatomic pathology under the direction of a qualified pathologist. Pathologists' assistants serve as physician-extenders in the same manner as physician assistants. The addition of pathologists' assistants to the pathology team can reduce cost, increase revenue, and improve workflow in the anatomic pathology lab. In practice, pathologists' assistants (PAs) are responsible for the processing of the surgical pathology specimen from receipt to dissection and description to submission of tissue to histology. In autopsy practice, the PA is involved in reviewing the medical record of the decedent, evisceration, dissection, and selection of tissue for submission to histology as well as formulation of a preliminary anatomic diagnosis and autopsy report under the direction of a pathologist. Many PAs are involved in laboratory management, teaching at the university-level, training of residents and medical students, forensic investigation, or research.

Nature of Program

The graduate program for pathologists' assistants began in January 2008 and is administered by the School of Medicine. Students are admitted into the Master of Health Science program after earning a baccalaureate degree from a regionally accredited college or university. Students with a cumulative grade point average of 3.25 or higher in the B.S. degree program in Medical Laboratory Science at West Virginia University may be provisionally admitted directly into the pathologists' assistant program at the end of their junior year.

This program is a twenty-four month master's-level program that prepares graduates as allied health professionals for careers as pathologists' assistants. During the second year, the student receives both didactic instruction and practical experience. Students receive practical experience at several of the program’s affiliated medical facilities including the following:

• Butler Health System, Butler, PA
• Charleston Area Medical Center, Charleston, WV
• Cuyahoga County Medical Examiner's Office, Cleveland, OH
• Excela Health Westmoreland Hospital, Greensburg, PA
• Franklin and Dauphin County Coroner, Harrisburg, PA
• MAWD Pathology, Kansas City, MO
• Mercy Health, St. Elizabeth, Youngstown, OH
• St. Clair Hospital, Pittsburgh, PA
• Thomas Memorial Hospital, Charleston, WV
• UPMC Health System including Presbyterian, Shadyside, Magee Women’s, and Children's Hospitals, Pittsburgh, PA
• WVU Medicine Sites:
  • Ruby Memorial Hospital, Morgantown, WV
  • Berkeley Medical Center (WVU East), Martinsburg, WV
  • United Health Center, Bridgeport, WV

Accreditation

The WVU Pathologists’ Assistant Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 W. Bryn Mawr Avenue, Suite 670, Chicago, IL 60631-3415, (773) 714-8880.

Certification

Graduates are eligible for certification by the Board of Certification of the American Society for Clinical Pathology (ASCP). Graduation is not contingent upon passing the certification exam.

Pathologists’ Assistant Program Essential Functions

In accordance with Section 304 of the 1973 Vocational Rehabilitation Act, the West Virginia University Pathologists’ Assistant program has adopted minimum technical standards for assessment of all applicants.

Because the master’s degree in health science/pathologists’ assistant signifies that the holder has obtained minimum competencies in all areas of the anatomic pathology laboratories, it follows that graduates must have the knowledge and skills to function in a wide variety of laboratory situations and to perform a wide variety of procedures.
1. Candidates for the master's degree in health science/pathologists' assistant must have somatic sensation (sense of touch) and the functional use of the senses of vision and hearing.

2. Candidates' diagnostic skills will also be lessened without the functional use of the sense of equilibrium, smell, and taste.

3. Additionally, they must have sufficient motor function to permit them to carry out the activities described in the sections that follow.

4. They must be able to consistently, quickly, and accurately integrate all information received by whatever sense(s) employed, and they must have the intellectual ability to learn, integrate, analyze, and synthesize data.

5. A candidate for the master's degree in health science/pathologists' assistant must have abilities and skills which include observation, communication, motor, conceptual, integrative, quantitative, behavioral, and social. Technological compensation can be made for some disabilities in certain areas, but a candidate should be able to perform in a reasonably independent manner. The use of a trained intermediary means that a candidate's judgment must be mediated by someone else's power of selection and observation.

6. Observation: The candidate must be able to observe demonstrations, procedures, and instruments in the basic sciences and clinical courses. Observation necessitates the functional use of the sense of vision and somatic sensation. It is enhanced by the functional use of the sense of smell.

7. Communication: A candidate should be able to speak, hear, and observe people in order to elicit information and perceive nonverbal communications. A candidate must be able to communicate effectively and efficiently in oral and written form with members of the health care team.

8. Motor: Candidates should have sufficient motor function to perform laboratory procedures. This action requires the coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

9. Intellectual—conceptual, integrative, and quantitative abilities: These abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem-solving requires all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand spatial relationships of structures.

10. Behavioral and Social Attributes: A candidate must possess the emotional health required for full utilization of his/her judgment, the prompt completion of all responsibilities, and the development of mature, sensitive relationships with patients and coworkers.

Candidates must be able to tolerate physically taxing workloads and to function effectively under stress. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of uncertainties. Compassion, integrity, concern for others, interpersonal skills, interest, and motivation are all personal qualities that should be assessed during admissions and education process. In its evaluation of applicants to the West Virginia University Pathologists' Assistant program, the Admissions Committee will approach each applicant with the following questions in mind.

When an applicant does not meet a non-academic standard as defined above, and when this would, in the professional judgment of the committee, not satisfy the pathologists' assistant objectives for the student in performing laboratory procedures, education, and research, such opinion will be documented by the Admissions Committee.

The questions are not designed to disqualify an applicant but rather to give the Admissions Committee more complete information about an applicant's ability to meet the following nonacademic standards:

1. Is the candidate able to observe demonstrations and perform procedures in the basic sciences and clinical courses?

2. Is the candidate able to analyze, synthesize, solve problems, and make judgments about results obtained on patient specimens?

3. Does the candidate have sufficient use of the senses of vision, hearing, and somatic sensation necessary to perform the indicated laboratory procedures?

4. Can the candidate reasonably be expected to communicate the results of laboratory tests to other members of the healthcare team with accuracy, clarity, and efficiency?

5. Can the candidate reasonably be expected to learn and perform laboratory tests and operate instruments?

6. Can the candidate reasonably be expected to display good judgment in the analysis of procedure results?

7. Can the candidate reasonably be expected to accept criticism and respond by appropriate modification of behavior?

8. Can the candidate reasonably be expected to possess the perseverance, diligence, and consistency to complete the pathologists' assistant program and to become a practicing pathologists' assistant?

FACULTY

PROGRAM DIRECTOR
- Michelle M. Costas - MHS, PA(ASCP)
  Assistant Professor

CLINICAL COORDINATOR
- Justin Falcon - MHS PA(ASCP)
  Assistant Professor
MEDICAL DIRECTOR
• David Howell - MD, PhD
  Assistant Professor

FACULTY
• Carie Boykin - MHS, PA(ASCP)
  Assistant Professor
• Hannah Smith - MHS, PA (ASCP)
  Assistant Professor
• Joy Grise - MHS, PA(ASCP)
  Assistant Professor

Admissions
All students seeking admission to the Master of Health Science, Pathologists’ Assistant program must meet the following admissions requirements:
• Hold an earned baccalaureate degree from a regionally accredited institution of higher education
• Successfully complete the specific prerequisite coursework in mathematics and sciences
• Have a cumulative GPA of 3.0 (on a 4.0 scale)
• Submit two letters of recommendation electronically, as part of the application
• Complete a shadowing experience with a certified PA in surgical pathology or have equivalent work experience
• Complete an interview with the admissions committee
• Submit an electronic admissions packet including the application form, personal statement, essential functions form, shadowing statement, and official transcripts from all colleges and universities attended

REQUIREMENT

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
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<tr>
<td>College Prep</td>
<td>Baccalaureate Degree</td>
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<tr>
<td>Prerequisite Courses</td>
<td>8 hours of Biology with laboratory</td>
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<tr>
<td>Prerequisite Courses</td>
<td>8 hours of College Chemistry with lab</td>
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<tr>
<td>Prerequisite Courses</td>
<td>3-4 hours of Organic Chemistry (CHEM 231 at WVU) or 3-4 hours of Biochemistry</td>
</tr>
<tr>
<td>Prerequisite Courses</td>
<td>3-4 hours of Microbiology, Immunology, Parasitology, or Virology</td>
</tr>
<tr>
<td>Prerequisite Courses</td>
<td>3 hours of college Algebra or higher</td>
</tr>
<tr>
<td>Prerequisite Courses</td>
<td>3 hours of English Composition or higher</td>
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<tr>
<td>Grade Point Average required</td>
<td>3.0 cumulative</td>
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<tr>
<td>Grade Point Average preferred</td>
<td>3.0 in the prerequisite courses</td>
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<tr>
<td>Recommendations</td>
<td>Two letters of recommendation</td>
</tr>
<tr>
<td>Interview</td>
<td>A personal interview with the Pathologists’ Assistant Program Admissions Committee</td>
</tr>
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Shadowing or Work Experience
Applicants must complete a shadowing experience with a practicing pathologists’ assistant in surgical pathology or have applicable work experience in surgical or autopsy pathology. A statement regarding this experience is required in the application packet. Please contact the program specialist for assistance if necessary.

Admissions Classifications
Students must have a baccalaureate degree prior to beginning the professional sequence. However, the program has established the following admissions classifications:
• Direct Admit: a limited number of students completing the bachelor of science program in Medical Laboratory Science with an emphasis in either Medical Laboratory Science or Histotechnology who have a cumulative GPA of 3.25 may apply to the Master of Health Science, Pathologists’ Assistant Program at the end of their junior year. These students will be admitted into the program after completing the B.S. in Medical Laboratory Science at West Virginia University.
• Regular Decision: a student applies in the admission cycle during their senior year.
Typically, applications will be submitted in the application period which extends from January 1 to April 30 of the senior year. Admission is contingent upon satisfactory completion of the baccalaureate degree.

**Performance Standards**

Students are required to maintain a minimum GPA of 3.0 to progress in the first and second year of the professional program.

**Application Procedure**

Each year, the pathologists' assistant program selects a limited number of students from the applications received for admission. Applications for admission to the program are available between January 1 and April 30 for the class beginning the following January. The application fee is sixty dollars. A completed admissions packet contains the following: completed application form (electronic), personal and shadowing statements, official transcripts, two recommendation letters, and the signed essential functions form. Each applicant must arrange for transcripts to be sent directly from all institutions attended to the Office of Graduate Admissions. When the application is complete, the file is sent to the Pathologists’ Assistant Admissions Committee. Recommendation letters can be from faculty in a pre-requisite course, a lab professional with whom the applicant has worked, current employer, or professional peer. Interviews are granted to qualified applicants after the committee has reviewed the completed admissions packet.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>MICB 702</td>
<td>Microbiology</td>
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<tr>
<td>PALM 465</td>
<td>Medical Laboratory Management</td>
<td>2</td>
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<tr>
<td>PALM 603</td>
<td>Pathology and Anatomy</td>
<td>6</td>
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<tr>
<td>PALM 605</td>
<td>Advanced Microanatomy</td>
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<td>PALM 610</td>
<td>Pathology Assistant Education Methods</td>
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<td>PALM 620</td>
<td>Clinical Pathology Seminar</td>
<td>2</td>
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<td>PALM 625</td>
<td>Anatomical Pathology Techniques</td>
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<td>PALM 627</td>
<td>Pathology Assistant Practicum 1</td>
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<td>Pathology Assistant Practicum 2</td>
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<td>Pathologists’ Assistant Practicum 3</td>
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<td>PALM 630</td>
<td>Pathology Review 1</td>
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<tr>
<td>PSIO 743</td>
<td>Fundamentals of Physiology</td>
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<tr>
<td>PALM 648</td>
<td>Surgical and Autopsy Pathology Procedures</td>
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<td>PALM 750</td>
<td>Systemic Pathology for Pathologists’ Assistant Students</td>
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<td>PALM 650</td>
<td>Introduction to Disease Mechanisms</td>
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<td>PALM 652</td>
<td>Histology for Pathologists’ Assistants</td>
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**SUGGESTED PLAN OF STUDY**

**First Year**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
<th>Hours</th>
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<td>MICB 702</td>
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<td>PSIO 743</td>
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<td>PALM 465</td>
<td>Medical Laboratory Management</td>
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<td>PALM 603</td>
<td>Pathology and Anatomy</td>
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<td>PALM 605</td>
<td>Advanced Microanatomy</td>
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<td>3 PALM 652</td>
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**Second Year**

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<th>Spring</th>
<th>Summer</th>
<th>Hours</th>
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<tr>
<td>PALM 629</td>
<td>Pathologists’ Assistant Practicum 3</td>
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<td>7 PALM 627</td>
<td>9 PALM 628</td>
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<td>PALM 631</td>
<td>Pathology Review 2</td>
<td>2</td>
<td>2 PALM 630</td>
<td>2</td>
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<tr>
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<td><strong>Total</strong></td>
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<td><strong>11</strong></td>
<td><strong>9</strong></td>
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</table>
GRADUATION REQUIREMENTS

Students are required to maintain an overall GPA of at least 3.0 as a graduate student while enrolled in the pathologists’ assistant program. A minimum 3.0 GPA is required to graduate from the program.

Major Learning Outcomes

PATHOLOGISTS’ ASSISTANT

The Pathologists’ Assistant Program prepares students to be highly skilled allied health professionals providing services in both surgical and autopsy pathology. Individuals are prepared both academically and professionally to be contributing members of the healthcare team.

Graduates will:

• Demonstrate proficiency in surgical pathology
  • Distinguish between normal and abnormal tissue both grossly and microscopically
  • Choose the appropriate tissue to submit based on clinical history
  • Gross complex surgical cases using the most recent cancer staging protocols
  • Choose the appropriate stains - routine, special, or IHC, - to assist the pathologist in making a diagnosis

• Demonstrate proficiency in autopsy pathology
  • Perform an autopsy using different techniques
  • Gather pertinent clinical history and all necessary documentation for a case
  • Compose a gross description for the autopsy report
  • Select tissue for processing

• Demonstrate concepts in medical laboratory management
  • Apply management principles to regulation and professional oversight
  • Compare healthcare delivery systems
  • Discuss ethical principles and decision making
  • Identify basic management concepts, functions, and styles

• Determine a differential diagnosis for tumors based on gross appearance and clinical history

• Engage in activities and behavior that promote the profession and positively represent the program

• Instruct residents, medical students, and other health professionals in surgical and autopsy techniques

COURSES

PALM 503. AT Human Anatomy. 4 Hours.
PR: Acceptance into the Master of Science in Athletic Training degree program. This course is an advanced human anatomy course designed for students with previous gross anatomy experience accepted to the Master of Science in Athletic Training degree program. We will utilize a regional anatomical approach to provide students with a comprehensive understanding of human structure and function, with particular emphasis on musculoskeletal and peripheral nervous systems.

PALM 601. Special Studies in Oral Pathology. 1-3 Hours.
Advanced study of local or systemic disease processes affecting oral structures through seminars, assignment of specific topics, or research activities.

PALM 603. Pathology and Anatomy. 6 Hours.
This course will cover gross and microscopic human anatomy including embryology, histology and microanatomy lab.

PALM 605. Advanced Microanatomy. 2 Hours.
Microanatomy of disease states including clinical correlations for students in the pathologists assistant program.

PALM 610. Pathology Assistant Education Methods. 1 Hour.
Techniques in educational methodology for pathologist’s assistants.

PALM 620. Clinical Pathology Seminar. 2 Hours.
This course presents a review of clinical pathology, including pertinent forensic molecular, toxicologic and radiologic diagnostics.

PALM 625. Anatomical Pathology Techniques. 4 Hours.
This course will cover standard techniques in surgical and autopsy dissection, preparation of reports, basic forensic, investigation techniques, and basic histological and immunological staining techniques.

PALM 627. Pathology Assistant Practicum 1. 9 Hours.
Rotations in surgical and autopsy pathology to include forensics and pediatrics.

PALM 628. Pathology Assistant Practicum 2. 9 Hours.
Rotations in surgical and autopsy pathology to include forensics and pediatrics.
PALM 629. Pathologists’ Assistant Practicum 3. 7 Hours.
PR: PALM 628. This course is a continuation of PALM 628 and advanced procedures and application of advanced techniques in surgical and autopsy pathology.

PALM 630. Pathology Review 1. 2 Hours.
This course includes an intense review of clinical and anatomical pathology theory and techniques, and presentation of scientific journal articles and clinical cases.

PALM 631. Pathology Review 2. 2 Hours.
PR: PALM 630. This course is a continuation of PALM 630 and includes an intense review of clinical and anatomical pathology theory and techniques, and presentation of journal articles and clinical cases.

PALM 648. Surgical and Autopsy Pathology Procedures. 3 Hours.
PR: PALM 625 and PALM 752. This course is specifically designed for Pathologists’ Assistant students as a comprehensive review course covering both surgical and autopsy pathology techniques to correlate with clinical rotations.

PALM 650. Introduction to Disease Mechanisms. 4 Hours.
This course is specifically designed for the pathologists’ assistant students to study the general pathology concepts associated with disease mechanisms.

PALM 652. Histology for Pathologists’ Assistants. 3 Hours.
This course presents students with histology content requisite to their field of study. It includes both lecture and web-based instruction.

PALM 693. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PALM 701. Advanced Gross Anatomy. 2-6 Hours.
PR: PALM 704 or PALM 724 and consent. Morphological and functional analysis of a selected region, with dissection.

PALM 704. Human Structure. 1-17 Hours.
PR: Admission to medical school or medical basic science graduate program or consent. Morphological and functional analysis of a selected region, with dissection.

PALM 705. Microanatomy. 5 Hours.
PR: Admission to medical basic science graduate program or consent. Study of cells, tissues, and organs.

PALM 712. Special Topics in Anatomy. 2-4 Hours.
PR: Consent. Different topics of current interest in anatomy that are not included in the regular graduate courses.

PALM 714. Applied Anatomy. 2-6 Hours.
PR: Consent. Detailed study of anatomy, adapted to the needs of the individual student.

PALM 716. Craniofacial Growth and Maturation. 1 Hour.
PR: Consent. The current concepts of craniofacial growth and maturation are presented and integrated for application to clinical problems.

PALM 718. Dental Histology. 6 Hours.
PR: Dental student standing or consent of instructor or chairperson. Cells, tissues, organs. Structure, function, and development of oral tissues.

PALM 719. Advanced Head and Neck Anatomy. 1 Hour.
PR: Admission to medical, dental or basic science graduate programs, or consent. Head and neck craniofacial anatomy as it applies to specialties in dental or medical practice.

PALM 724. Human Gross Anatomy. 7 Hours.
PR: Admission to dental school or medical basic science graduate program or consent. Human anatomy including cadaver dissection for dental students. (4 hr. lec., 3 hr. lab.).

PALM 728. General Pathology. 5 Hours.
PR: Consent. A study of the pathophysiological changes associated with human disease and a study of disease of major organ systems.

PALM 738. Oral Pathology 1. 3 Hours.

PALM 750. Systemic Pathology for Pathologists’ Assistant Students. 8 Hours.
Pathologists’ Assistant students study the different disease processes and neoplasms they will encounter while in surgical pathology and autopsy. This course provides the background necessary to properly gross surgical pathology specimens or select tissue at autopsy in order to assist the pathologist in diagnosing patients.

PALM 751. Advanced Microanatomy and Organology. 2-4 Hours.
PR: PALM 705 or PALM 709 and Consent. Special emphasis on recent contributions.

PALM 753. Oral Pathology 2. 2 Hours.
PR: PATH 738 or consent. Continuation of PATH 738.

PALM 782. Advanced Oral Histopathology. 1,2 Hour.
PR: PALM 738 and PALM 753 or consent. An elective seminar stressing the significant microscopic features and diagnosis of various oral lesions.
PALM 793. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PALM 801. Human Structure. 7 Hours.
Human Structure is an integrated course combining human gross anatomy, microanatomy and embryology. Students will conduct human cadaver dissection and learn the microscopic anatomy of cells, tissues and organs with application to human health and disease.

PALM 802. Mechanisms of Human Disease. 11 Hours.
Integrated study of disease using structure-function relationships. This course includes the structural, biochemical, and functional changes in cells, tissues, and organs that underlie disease.

PALM 812. Mechanisms of Human Disease (PATH) 1. 3 Hours.
Pathology is the study (logos) of disease (pathos). It includes the structural, biochemical, and functional changes in cells, tissues, and organs that underlie disease. The purpose of this course is to introduce students to the morphologic, molecular, microbiologic, and immunologic techniques to identify the signs and symptoms manifested by patients.

PALM 820. Mechanisms of Human Disease (PATH) 2. 7 Hours.
PR: Medical students must satisfactorily pass all first-year MD Degree courses to enroll in this course. Pathology is the study (logos) of disease (pathos). It includes the structural, biochemical, and functional changes in cells, tissues, and organs that underlie disease. Pathologists use morphologic, molecular, microbiologic, and immunologic techniques to explain the whys of the signs and symptoms manifested by patients.