PHYSICIAN ASSISTANT STUDIES

Courses offered by the Master of Science in Physician Assistant Studies program are listed under the subject code PAS (https://explorecourses.stanford.edu/search/?view=catalog&academicYear=&page=0&q=PAS&filter-departmentcode-PAS=on&filter-coursestatus-Active=on) on the Stanford Bulletin's Explore Courses website.

The Master of Science (M.S.) in Physician Assistant Studies, or MSPA, program is a 9-quarter program (with one summer break) that includes streamlined courses with innovative content delivery, a state-of-the-art simulation lab, and world-class clinical anatomy experiences as well as early exposure to patient care. Students receive mentorship and support in their academic and research focus areas by clinically practicing Stanford PAs. During the didactic work, PA students are located at the School of Medicine and enroll as a cohort in a clinically focused curriculum. A substantial portion of their courses are integrated with medical students, allowing for an invaluable interprofessional education experience. During their clerkship year, students rotate through Stanford-affiliated hospitals and ambulatory practices as well as select sites throughout California. In an innovative approach to PA education that encourages the next generation of PA leaders, students are required to select one leadership track and complete a capstone project in that area. The leadership tracks include:

- Community Health
- Health Services and Policy Research
- Clinical Research
- Medical Education
- Healthcare Administration

Upon completion of this program, students are prepared to sit for the Physician Assistant National Certification Examination (PANCE).

The Master of Science in Physician Assistant Studies program is open to external as well as internal applicants. Advanced placement and coterminal degrees for Stanford University undergraduates are not available at this time. Individuals who wish to apply to the program should do so via the Central Application Service for Physician Assistants (CASPA) (https://caspa.liaisoncas.com). The application window typically opens at the end of April and closes on August 1, though the deadline has been extended to October 1 for the 2020 application cycle only. GRE scores *or* MCAT scores are typically required, though this requirement is being waived for the 2020 application cycle. The CASPer exam (https://takecasper.com) is also required, and this requirement has not been waived for the 2020 cycle. An undergraduate degree from a regionally accredited US educational institution is required; applicants with a graduate degree from a regionally accredited U.S. academic institution **and** an equivalent undergraduate degree (see required minimum level of study (https://gradadmissions.stanford.edu/applying/international-applicants/)) from a recognized academic institution outside the U.S. are also eligible to apply. For detailed information on applying, please visit the Admissions section (http://med.stanford.edu/pa/admissions.html) of our website.

The University requirements for the M.S. degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees/)" section of this bulletin.

Master of Science in Physician Assistant Studies

The Master of Science (M.S) in Physician Assistant (PA) Studies program is for individuals who wish to pursue a career as a PA. The program is available to external and internal candidates. Advanced placement and coterminal degrees for Stanford University undergraduates are not available at this time.

The first five quarters of the nine quarter program involve acquiring fundamental medical knowledge through coursework in clinical anatomy, the basic sciences, pharmacology, and pathophysiology and disease management, as well as attaining core skills in medical interviewing and the physical examination. The last four quarters of the program are dedicated to experiential learning through clinical rotations in inpatient and outpatient medicine, pediatrics, women's health, emergency medicine, surgery, and behavioral medicine, as well as elective rotations.

Admission

- Applicants must have received an undergraduate degree from a regionally accredited U.S. college or university (or a graduate degree from a regionally accredited U.S. academic institution **and** an equivalent undergraduate degree from a recognized academic institution outside the U.S.) by July 15 of the year of matriculation; no specific discipline or major is prescribed.
- Prior healthcare experience (> 500 hours) through either prior employment and/or volunteer work is strongly recommended.
- The Graduate Record Examination (GRE) or the MCAT is required, though this requirement is being waived and changed to a recommendation for the 2020 application cycle. Note that GRE scores are only valid for five years and must be current at the time of application.
- Candidates are required to submit two personal statements of no more than 2,000 characters and three letters of reference as part of the application process via CASPA (https://caspa.liaisoncas.com/).
- Candidates are also required to answer questions in CASPA (https://caspa.liaisoncas.com/) specifically designed for the Stanford School of Medicine M.S. in PA Studies program. The questions relate to future PA practice, leadership potential, leadership track, and contributions to diversity. There is no supplemental application.

It is strongly recommended that students complete the following coursework prior to applying to the program:

- Anatomy
- Physiology
- Chemistry
- General Statistics or Biostatistics
- Psychology

Three upper-division science courses (e.g., in cell biology, genetics, or microbiology) are recommended before matriculation.

Degree Requirements

All students in the program must complete the Master of Science in PA Studies program core curriculum (182 units) and additional work in a leadership track (~6 units).

Upon completion of the didactic coursework (5 quarters), students begin 12 months of clinical clerkship within the Stanford Health Care community and in other select clinical sites.

Students must choose a leadership track from the following:

- Community Health
- Health Services and Policy Research
- Clinical Research
- Medical Education
- Healthcare Administration

All students must complete a capstone project in their leadership track.

COVID-19 Policies

On July 30, the Academic Senate adopted grading policies effective for all undergraduate and graduate programs, excepting the professional Graduate School of Business, School of Law, and the School of Medicine M.D. Program. For a complete list of those and other academic policies relating to the pandemic, see the "COVID-19 and Academic Continuity (http://exploredegrees.stanford.edu/covid-19-policy-changes/#tempdepttemplatetabtext)" section of this bulletin.

The Senate decided that all undergraduate and graduate courses offered for a letter grade must also offer students the option of taking the course for a “credit” or “no credit” grade and recommended that deans, departments, and programs consider adopting local policies to count courses taken for a “credit” or “satisfactory” grade toward the fulfillment of degree-program requirements and/or alter program requirements as appropriate.

Graduate Degree Requirements

Grading

The MSPA program has not changed its policy concerning 'CR' (credit) or 'S' (satisfactory) grades in degree requirements requiring a letter grade for academic year 2020-21.

Graduate Advising Expectations

The Master of Science in Physician Assistant Studies program is committed to providing academic advising in support of graduate student scholarly and professional development. When most effective, this advising relationship entails collaborative and sustained engagement by both the advisor and the advisee. As a best practice, advising expectations should be periodically discussed and reviewed to ensure mutual understanding. Both the advisor and the advisee are expected to maintain professionalism and integrity.

Faculty advisors guide students in key areas such as selecting courses, designing and conducting research, development of teaching pedagogy, navigating policies and degree requirements, and exploring academic opportunities and professional pathways.

Graduate students are active contributors to the advising relationship, proactively seeking academic and professional guidance and taking responsibility for informing themselves of policies and degree requirements for their graduate program.

For a statement of University policy on graduate advising, see the "Graduate Advising (http://exploredegrees.stanford.edu/graduatedegrees/#advisingandcredentialstext)" section of this bulletin.

Leadership

Associate Dean for PA Education and Program Director: Susan Fernandes
Associate Program Director: Rhonda Larsen
Medical Director: Andrew Nevins
Associate Medical Director: Ian Nelligan

Core Faculty

Director of Pre-Clerkship Education: Nicole Burwell
Director of Clerkship Education: Kendra Patton Silverman
Director of Student Scholarship: Michele Toussaint
Clinical Site Director - Central Valley: Sampath (Sam) Wijesinghe

Educators for Care PA (E4C-PA) Faculty

Lead E4C-PA: Courtney Nelson

Chad Anderson
Camille Bloom
Andrea Fox
Jennifer Hunter
Rochelle Reyes
Hannah Wright

Courses

PAS 201. Foundations of Clinical Medicine. 4 Units.
This course explores fundamental concepts of biochemistry, genetics, microbiology, and immunology as applied to clinical medicine in a mostly "flipped classroom" format. This course will help to establish a foundation for understanding the pathophysiology of disease and the targets for therapeutic interventions. Disciple-specific topics include: Biochemistry: thermodynamics, enzyme kinetics, vitamins and cofactors, metabolism of carbohydrates, lipids, amino acids and nucleotides, and the integration of metaboloic pathways. Genetics: basic principles of inheritance and risk assessment, illustrated with the use of clinical examples from many areas of medicine including prenatal, pediatric, adult and cancer genetics. Microbiology: Basic bacteriology, virology, mycology and parasitology, including pathogenesis and clinical scenarios associated with infectious diseases. Immunology: concepts and applications of adaptive and innate immunity and the role of the immune system in human disease.

PAS 202. Foundations of Clinical Neurosciences. 2 Units.
Foundations of Clinical Neurosciences introduces students to the structure and function of the nervous system, including neuroanatomy and neurophysiology. Applications to clinical medicine and neurology are emphasized. Enrollment limited to Master of Science in Physician Assistant Studies students. Prerequisite: PAS 201.

PAS 212. Principles of Clinical Medicine I. 8 Units.
This is the first in a four-course sequence presenting organ-system based physiology, pathology and pathophysiology. Each organ-specific block includes a review of the anatomy and related histology, normal function of that organ system, how the organ system is affected by and responds to disease, and how diseases of that organ system are treated. In PAS 212, the focus us on the structure, function, disease and corresponding therapeutics of several "primary care" topics, particularly the musuloskeletal and dermatologic systems. In addition, basic neurology otorhinolargyngology, and ophthalmology will be covered.

PAS 213. Principles of Clinical Medicine II. 8 Units.
This is the second in a four-course sequence presenting organ-system based physiology, pathology and pathophysiology. Each organ-specific block includes a review of the anatomy and related histology, normal function of that organ system, how the organ system is affected by and responds to disease, and how diseases of that organ system are treated. In PAS 213, the focus is on the structure, function, disease, and corresponding therapeutics of the pulmonary and cardiovascular systems.

PAS 214. Principles of Clinical Medicine III. 12 Units.
This is the third in a four-course sequence presenting organ-system based physiology, pathology, and pathophysiology. Each organ-specific block includes a review of the anatomy and related histology, normal function of that organ system, how the organ system is affected by and responds to disease, and how diseases of that organ system are treated. In PAS 213, the focus is on the structure, function, disease, and corresponding therapeutics of the Renal, Gastroenterology, Endocrine and Reproductive Health systems.

PAS 215. Principles of Clinical Medicine IV. 10 Units.
This is the fourth in a four-course sequence presenting organ-system based physiology, pathology, and pathophysiology. Each organ-specific block includes a review of the anatomy and related histology, normal function of that organ system, how the organ system is affected by and responds to disease, and how diseases of that organ system are treated. In PAS 214, the focus is on the structure, function, disease, and corresponding therapeutics of the Neurologic, Psychiatric, Hematologic, Oncologic, and Autoimmune/Rheumatologic systems.

PAS 222. Clinical Therapeutics I. 2 Units.
This course will provide a foundation for learning pharmaceutical therapies related to subjects covered in the Principles of Clinical Medicine I course. In addition to general pharmacokinetic principles, the first segment of the course will cover the use of drugs applied to the skin and topical and systemically administered drugs for dermatologic diseases. Pharmacology of the autonomic nervous system, both sympathetic and parasympathetic divisions, will be overviewed in addition to gaining an understanding of how drug manipulation on cholinergic and adrenergic receptors modulate nerve activity. The course will conclude with an examination of drugs acting on the allergenic and pathogenic pathways as they pertain to ENT conditions.

PAS 223. Clinical Therapeutics II. 2 Units.
This course will provide students a detailed comprehension of drug mechanisms and clinical drug therapies for cardiovascular and pulmonary diseases as covered in the Principles of Clinical Medicine II course. The course will examine anti-hypertensive agents, drugs used for cardiovascular therapies. Clinical treatment for common pulmonary diseases including emphysema and asthma, in addition to the pharmacology of medications including bronchodilators and anti-inflammatory drugs will be discussed.

PAS 224. Clinical Therapeutics III. 3 Units.
This is the third course of a 4-part series focused on pharmacology and clinical therapeutics with topics related to subjects covered in the Principles of Clinical Medicine III course. Topics will include renal, gastrointestinal, endocrine, and men¿s/women¿s health. The pharmacology component will focus on mechanism of action, clinical use, contraindications, adverse reactions, and clinically significant drug interactions of various drug classes. The clinical therapeutics component will focus on medical management of diseases with an emphasis on patient specific drug management.

PAS 225. Clinical Therapeutics IV. 2 Units.
This is the fourth course of a 4-part series focused on pharmacology and clinical therapeutics with topics related to subjects covered in the Principles of Clinical Medicine IV course. Topics will include neurology, psychiatry, oncology, and rheumatology. The pharmacology component will focus on mechanism of action, clinical use, contraindications, adverse reactions, and clinically significant drug interactions of various drug classes. The clinical therapeutics component will focus on medical management of diseases with an emphasis on patient specific drug management.

PAS 251. Design and Conduct of Clinical and Epidemiological Studies. 3-4 Units.
Intermediate Level. The skills to design, carry out, and interpret epidemiological studies, particularly of chronic diseases. Topics: epidemiologic concepts, sources of data, cohort studies, case-control studies, cross-sectional studies, sampling, measures of association, estimating sample size, and sources of bias. Prerequisite: A basic/introductory course in statistics or consent of instructor.

PAS 255. Introduction to Qualitative Research I. 2 Units.
This course will provide the physician assistant student with an introduction to qualitative manuscripts, describing types of qualitative research methods, and discussing their own tentative qualitative research questions/designs.Prerequisites: Enrollment in the Master of Science in Physician Assistant Studies program.

PAS 256. Introduction to Qualitative Research II. 2 Units.
This course will provide the physician assistant students with an introduction to qualitative research methods, specifically data analysis, with significant time focused on thematic analysis coding. Prerequisites: successful completion of PAS 255.

PAS 282. AHEC Scholars Program. 2 Units.
Acceptance into the AHEC Scholars Program.

PAS 291. PAs in Health Care I: Introduction to the Profession. 1 Unit.
This course provides an overview of the PA profession. The first portion of the course covers the history of the PA profession, the role of the PA within the health care team, and an overview of the laws, regulations and committees that provide oversight to the profession. The second portion of the course focuses on health disparities, social determinants of health and undeserved communities, and the role of the PA in the care of these populations. It includes development of the awareness, knowledge, and skills needed in order to practice culturally competent and sensitive health care.

PAS 292. PAs in Health Care II: Introduction to Advanced Skill Training for PAs. 2 Units.
The PAs in Health Care II: Introduction to Advanced Skill Training for PAs course will focus on advanced clinical skills including basic and advanced cardiac life support, imaging skills and interpretation along with additional proceduralnskills in preparation for clerkships.

PAS 293. PAs in Health Care III: Transition to Clerkships. 2 Units.
The PAs in Health Care III course provides the skills necessary for a smooth transition from didactic learning to clerkship experiences. The first portion will focus on clerkship expectations, the PA student role as a member of the health care team, avoiding medical errors, and improving quality. Advanced skill training will also be included such as vascular line and chest tube placement, advanced suturing, and intubation.

PAS 294. PAs in Healthcare IV: Leadership, Advocacy, and Preparation for Practice. 1 Unit.
The final course in the PAs in Health Care series will provide students with the skills necessary for transition from PA student to practicing PA and will continue to expand on leadership skills. One portion of the course will focus on preparation from the transition to clinical practice, which will include requirements for licensure and certification, medical liability, and ethics. Another thread will consist of lectures on advanced and novel topics in medicine. Additionally, there will be a thread for development of leadership skills and advocacy. The culmination of the Capstone research project will also occur during this course.

PAS 299. Directed Reading in PA Studies. 1-10 Unit.
Students organize an individualized study program in physician assistant studies. Prerequisites: Successful completion of PAS 214.

PAS 301. Internal Medicine Clerkship I. 6 Units.
Teaches the natural history, pathophysiology, diagnosis, and treatment of a wide range of medical illnesses. Emphasis is placed on acquiring the understanding, skills, and attitudes desirable in a scientific and compassionate PA. Students will perform histories and physical examinations, identify appropriate orders, order and interpret appropriate diagnostics studies to develop a differential diagnosis, and interpret information gathered from the patient assessment data to formulate a patient-centered treatment plan. Developing sound clinical reasoning skills is continuously emphasized. Students will be able to provide an accurate verbal presentation to the rotation preceptor, counsel patients about therapeutic procedures; and help to coordinate medical consultations by sub-specialty providers as needed to take appropriate care. Students will follow the progress of patients through their hospitalization, write a note appropriate for the patient¿s medical record and develop a discharge plan. Students will attend and participate in medical rounds and conferences.

PAS 302. Internal Medicine Clerkship II. 6 Units.
Teaches the natural history, pathophysiology, diagnosis, and treatment of a wide range of medical illnesses. Emphasis is placed on acquiring the understanding, skills, and attitudes desirable in a scientific and compassionate PA. Students will perform histories and physical examinations, identify appropriate orders, order and interpret appropriate diagnostics studies to develop a differential diagnosis, and interpret information gathered from the patient assessment data to formulate a patient-centered treatment plan. Developing sound clinical reasoning skills is continuously emphasized. Students will be able to provide an accurate verbal presentation to the rotation preceptor, counsel patients about therapeutic procedures; and help to coordinate medical consultations by subspecialty providers as needed to take appropriate care. Students will follow the progress of patients through their hospitalization, write a note appropriate for the patient¿s medical record and develop a discharge plan. Students will attend and participate in medical rounds and conferences.

PAS 303. Primary Care I. 6 Units.
During the outpatient medicine rotation students will be involved in the initial and ongoing assessment of patients in all age groups. In addition to routine health maintenance, students will become familiar with common primary care and urgent care problems. Students will be responsible for taking medical histories, performing physical examinations, ordering appropriate diagnostic testing, interpreting results and forming a plan. The student will provide an accurate, pertinent and time-effective verbal presentation to the rotation preceptor and will write an accurate note suitable for inclusion in the patient's medical record. Patient education, counseling, and coordination of additional resources for patient care will also be included. The outpatient medicine rotations may take place in private offices, family practices, urgent care clinics, hospitals, or other ambulatory care clinics.

PAS 304. Primary Care II. 6 Units.
During the outpatient medicine rotation students will be involved in the initial and ongoing assessment of patients in all age groups. In addition to routine health maintenance, students will become familiar with common primary care and urgent care problems. Students will be responsible for taking medical histories, performing physical examinations, ordering appropriate diagnostic testing, interpreting results and forming a plan. The student will provide an accurate, pertinent and time-effective verbal presentation to the rotation preceptor and will write an accurate note suitable for inclusion in the patient's medical record. Patient education, counseling, and coordination of additional resources for patient care will also be included. The outpatient medicine rotations may take place in private offices, family practices, urgent care clinics, hospitals, or other ambulatory care clinics.

PAS 311. Pediatrics. 6 Units.
The Pediatrics rotation will take place in outpatient pediatric clinics and private pediatric offices. The clerkship provides an introduction to a wide range of clinical problems in pediatrics and arms students with the basic skills needed to work with children and families. The rotation will emphasize caring for a child from birth through late adolescence. Students will assess, evaluate and develop a patient-centered treatment plan according to published guidelines when appropriate. Students will provide an accurate verbal presentation to the rotation preceptor and write an accurate note suitable for inclusion in the patient's medical record. The rotation will stress diagnosis and treatment of common childhood illnesses and assessment of growth and development. Students will develop skills to counsel parents about well-visits, immunizations, nutrition, growth and development.

PAS 320. Surgery. 6 Units.
Provides PA students with clinical experience in the evaluation and treatment of a wide variety of surgical diseases. Emphasis is placed on teaching students to recognize and manage basic clinical problems. As members of the surgical team, students participate in preoperative management, including patient education and procedures necessary to prepare patients for surgery. Students will perform admitting histories and physical examinations, identify appropriate admitting orders for surgical patients and identify appropriate diagnostic studies required prior to surgical procedures. In the operating room setting, students will assist surgeons and have an opportunity to become familiar with protocols and equipment. Students will be involved in pre-operative, intra-operative and post-operative care. The clerkship offers an opportunity for students to integrate their knowledge of anatomy, physiology and physical diagnosis into a treatment plan for patients with surgical diseases. When possible, students attend surgical grand rounds and other surgically-oriented conferences.

PAS 321. Emergency Medicine. 6 Units.
Provides students with exposure to common problems encountered in an emergency room setting. Students will be responsible for taking medical histories, performing physical examinations, ordering and interpreting appropriate diagnostic testing, performing diagnostic and therapeutic procedures as needed under appropriate supervision, and forming a patient-centered care plan for patients seen for emergent and non-emergent issues. The student will provide an accurate, pertinent and time-effective verbal presentation to the rotation preceptor and will write an accurate note suitable for inclusion in the patient's medical record. Students will identify criteria for hospital admission and coordinate the admission to the appropriate setting and service. During the Emergency Medicine rotation students may also be exposed to patients with life-threatening conditions such as cardiac/respiratory failure, trauma, shock, overdose, poisoning, allergic reactions, seizures.

PAS 331. Women's Health. 6 Units.
Provides the student with skills and knowledge needed to care for patients with common gynecological problems, the well-woman examination, and pregnancy from prenatal care through delivery and postpartum. As an active member of the obstetrical and gynecological care team, students will be exposed to a wide range of common gynecological problems. They will perform histories and physical examinations, order and interpret diagnostic testing, and formulate a patient- centered treatment plan. Emphasis is placed on history and physical examination skills in the evaluation and management of pregnancy, vaginal delivery, and both office gynecology and gynecologic surgical procedures through exposure to patients in the outpatient clinics, Labor and Delivery, and the operating room. They will learn the role of a surgical assistant for gynecologic procedures and how to counsel patients on family planning and contraception. For obstetrical patients, students will develop prenatal plans for uncomplicated pregnancies, assist with deliveries and develop skills to supervise and manage labor and delivery in an emergency situation.

PAS 336. Behavioral Medicine. 6 Units.
Provides students with exposure to a wide range of mental health issues in hospital and/or clinic-based settings. The clerkship is designed to solidify the knowledge of psychiatry that students have acquired in the Practice of Medicine course, as students gain practical skills in the application of this knowledge to clinical situations. Students will perform thorough histories including a mental status examination and will use tools for cognitive testing, order appropriate diagnostic studies, interpret information gathered from patient assessment data, and formulate a patient-centered treatment plan including pharmacological treatment when appropriate. The course will also offer an overview of psychosocial and biological treatment modalities for the major psychiatric disorders. Students will be required to recognize the various types of mental health issues that require referral to a specialist and to know which mental health problems can be handled by the non-specialist.

PAS 351. MSPA Elective I. 6 Units.
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PAS 352. MSPA Elective II. 6 Units.
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PAS 353. MSPA Elective III. 6 Units.
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PAS 399. Directed Reading in PA Studies. 1-10 Unit.
Students organize an individualized study program in physician assistant studies.