



PennState

COLLEGE OF MEDICINE BULLETIN

2024-25

This document contains a copy of the 2024-25 Penn State College of Medicine Bulletin as it appeared on May 6, 2024.

To view a current list of changes to the 2024-25 College of Medicine Bulletin since that date, please visit the [Changes to the College of Medicine Bulletin page](#).

TABLE OF CONTENTS

College of Medicine Bulletin	2	Obstetrics and Gynecology - MD (OBGYN)	49
Archive	2	Ophthalmology (OPHTH)	51
General Information	2	Orthopaedics (ORTHO)	52
Using this Bulletin	2	Otolaryngology (OTO)	52
About the College of Medicine	5	Pathology - MD (PATH)	53
Resources	6	Patients and Sciences (PS)	53
Residencies and Fellowships	8	Pediatrics - MD (PED)	54
Graduation Information	8	Physical Medicine and Rehabilitation (PMR)	57
Student Handbooks	8	Physician Assistant Studies (PAS)	58
About Penn State	8	Primary Care Medicine (PCMED)	75
MD Program	11	Problem-Based Learning Facilitation - MD (PBL)	76
Physician Assistant Program	25	Psychiatry - MD (PSCHT)	76
University Course Descriptions	29	Radiology (RAD)	77
College of Medicine Courses	33	Renal Medicine - MD (REN)	78
Anatomy - MD (ANAT)	33	Respiratory Medicine (RESP)	78
Anesthesiology - MD (ANSTH)	34	Sciences Health Systems (SHS)	79
Cardiology - MD (CAR)	35	Scientific Principles of Medicine (SPM)	80
Career Exploration and Synthesis (CES)	35	Students as Educators (SAE)	80
Complementary Alternative Medicine (CAM)	35	Surgery - MD (SURG)	80
Consolidation (CONSD)	35	Transition (TRANS)	82
Culinary Medicine (CULMD)	36	Transition Clinical Medicine (TCM)	82
Dermatology - MD (DERM)	36	Translating Health Systems Science (THS)	82
Emergency Medicine - MD (EMED)	36	Underserved Medicine and Domestic Health (UMDH)	83
Endocrinology and Reproductive Medicine (ENREP)	37	Index	84
Family and Community Medicine - MD (FCMED)	37		
Form and Function (FORM)	39		
Foundations of Patient Centered Care (FPCC)	39		
Gastroenterology - MD (GI)	39		
Global Health (GH)	39		
Humanities - MD (HMN)	39		
Independent Study (INDEP)	44		
Medical Home Curriculum (MHC)	44		
Medical Student Research (MSR)	44		
Medical Triage and Resuscitation (MEDTR)	44		
Medicine - Interdisciplinary (MDADM)	44		
Medicine - MD (MED)	45		
Musculoskeletal System (MSK)	48		
Neural and Behavioral Science (NBS)	48		
Neuroscience - MD (NEURO)	48		
Neurosurgery (NSURG)	49		

COLLEGE OF MEDICINE BULLETIN

This is the official College of Medicine Bulletin of The Pennsylvania State University.

The College of Medicine dean is responsible for, and has authority over, all academic information contained in the College of Medicine Bulletin.

Each step of the educational process, from admission through graduation, requires continual review and approval by University officials. The University, therefore, reserves the right to change the requirements and regulations contained in this Bulletin and to determine whether a student has satisfactorily met its requirements for admission or graduation, and to reject any applicant for any reason the University determines to be material to the applicant's qualifications to pursue higher education.

Archive

In 2018, Penn State began publishing an online College of Medicine Bulletin. A new edition of the College of Medicine Bulletin is published at the beginning of the summer semester each year. At that time, the College of Medicine Bulletin edition from the previous academic year is archived. You can visit this page to access past editions of the College of Medicine Bulletin.

Past Bulletins

- 2023-24 College of Medicine Bulletin (coming soon)
- 2022-23 College of Medicine Bulletin (<https://bulletins.psu.edu/archive/2022-2023/medicine/>)
- 2021-22 College of Medicine Bulletin (<https://bulletins.psu.edu/archive/2021-2022/medicine/>)
- 2020-21 College of Medicine Bulletin (<https://bulletins.psu.edu/archive/2020-2021/medicine/>)
- 2019-20 College of Medicine Bulletin (<https://bulletins.psu.edu/archive/2019-2020/medicine/>)
- 2018-19 College of Medicine Bulletin (<https://bulletins.psu.edu/archive/2018-19/medicine/>)

General Information

The seven General Information sections in the College of Medicine Bulletin are designed to give you an overview of the College of Medicine's structure, resources, and opportunities. In addition to the information found on the MD Program (p. 11) and Physician Assistant Program (p. 25) pages in this Bulletin, the student handbooks include additional details about academic policies, calendars, and contacts.

Click on topics of interest below or the tabs to the right to explore different information areas. In addition, General Information sections can be accessed from any page in the Bulletin from the navigation bar.

- Using this Bulletin (p. 2)
- About the College of Medicine (p. 5)
- Graduation Information (p. 8)
- Residencies and Fellowships (p. 8)
- Resources (p. 6)
- Student Handbooks (p. 8)
- About Penn State (p. 8)
- Using this Bulletin**

This Bulletin is the comprehensive source of academic information and program requirements for the Penn State College of Medicine. The College is committed to the education of medical, physician assistant, graduate students, and practicing health professionals. Explore programs and research opportunities as you select your specialty and gain knowledge in the field.

Features

Changes Page

- Real-time amendments to information in the Bulletin will be tracked on the Changes (p. 3) page.
- Currently or previously enrolled students should consult their adviser and degree audit reports for specific requirements.

Course Bubble

When a course link is clicked, a course bubble will appear with important course information including, but not limited to:

- course title, description, and credits;
- prerequisites

Nondiscrimination Statement

The University is committed to equal access to programs, facilities, admission and employment for all persons. It is the policy of the University to maintain an environment free of harassment and free of discrimination against any person because of age, race, color, ancestry, national origin, religion, creed, service in the uniformed services (as defined in state and federal law), veteran status, sex, sexual orientation, marital or family status, pregnancy, pregnancy-related conditions, physical or mental disability, gender, perceived gender, gender identity, genetic information or political ideas. Discriminatory conduct and harassment, as well as sexual misconduct and relationship violence, violates the dignity of individuals, impedes the realization of the University's educational mission, and will not be tolerated. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Office, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Email: aao@psu.edu, Tel (814) 863-0471.

Academic Authority

The College of Medicine dean is responsible for, and has authority over, all academic information contained in the College of Medicine Bulletin.

Each step of the educational process, from admission through graduation, requires continual review and approval by University officials. The University, therefore, reserves the right to change the requirements and regulations contained in this Bulletin and to determine whether a student has satisfactorily met its requirements for admission or graduation, and to reject any applicant for any reason the University

determines to be material to the applicant's qualifications to pursue higher education.

Changes to the College of Medicine Bulletin

Courses Added: Effective Summer 2024

- MDADM 700: Ambulatory Medicine Clerkship
- MSR 711: Medical Student Research Project I
- MSR 742: Medical Student Research Project II
- NEURO 700: Neuroscience Clerkship
- PAS 700: Medical Ethics and Professionalism
- PAS 795: Rheumatology Elective Rotation
- PAS 796: Diversity, Equity, and Inclusion Advocacy Elective

Courses Added: Effective Fall 2024

- MDADM 744: Systems-Conscious and Humanistic Medicine

Courses Dropped: Effective Summer 2024

- ANAT 715: Human Gross Anatomy
- BBD 716: Biological Basis of Disease
- BIH 722: Behavioral Influences on Health
- CAR 722: Cardiology
- CLC 712: Clinical Learning Competencies I
- CLC 713: Clinical Learning and Competencies I
- CLC 714: Clinical Learning and Competencies II
- CLC 721: Clinical Learning and Competencies II
- CLC 722: Clinical Learning and Competencies III
- CLC 723: Clinical Learning and Competencies III
- CLC 724: Clinical Learning and Competencies IV
- CMBMP 711: Cellular and Molecular Basis of Medical Practice
- CMBMP 712: Cellular and Molecular Basis of Medical Practice
- DERM 720: Dermatology
- EBM 713: Evidence-based Medicine I
- EBM 723: Evidence-based Medicine II
- END 731: Endocrinology
- FCM 713: Foundations of Clinical Medicine I
- FCM 714: Foundations of Clinical Medicine I
- FCM 723: Foundations of Clinical Medicine II
- FCM 724: Foundations of Clinical Medicine II
- GI 729: Gastroenterology
- HEM 721: Hematology
- HEM 723: Hematology
- HEQ 700: Health Equity Clerkship
- HMN 713: Medical Humanities
- HMN 714: The Science of Mind-Body
- HMN 715: Critical Thinking for Medical Practice
- HSHEQ 700: Health Systems and Equity Course
- INTSC 733: Integrated Science
- MCLKS 701: Advanced Clinical Diagnostics
- MCLKS 702: Clinical Therapeutics
- MCLKS 704: Improving Healthcare
- MEP 721: Medical Ethics and Professionalism
- MSC 727: Musculoskeletal Medicine

- MSK 723: Musculoskeletal System
- NBS 725: Neural and Behavioral Science
- PCMED 700: Primary Care Preceptorship
- PCMED 731: Primary Care Clerkship
- PLM 726: Pulmonary Medicine
- REN 728: Hematology
- REP 730: Reproductive Medicine
- SBMP 715: Structural Basis of Medical Practice
- SIH 711: Social Influences on Health
- SOEM 711: Socio-Ecological Medicine

Course Changes: Effective Summer 2024

EMED 752: Emergency Medicine Acting Internship (5 Credits) Old Listing Effective Through Spring 2024:

Supervised experience in the management of acute medical and surgical conditions in the emergency care unit.

PreRequisite: successful completion of all third year core clerkships

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Credits
- Changed Course Description

FCMED 771: Family & Community Medicine Clerkship (9 Credits) Old Listing Effective Through Spring 2024:

Student participation in ambulatory clinical care of the patient in his own environment and in a variety of health care centers.

Changes Effective Summer 2024:

- Changed Course Number to 700
- Added Prerequisites
- Changed Course Description

FCMED 722: Family Medicine Acting Internship (5 Credits) Old Listing Effective Through Spring 2024:

The goal of the inpatient experience is to allow the fourth-year medical student to accept responsibility for the planning and execution of ongoing care of hospitalized patients, evaluate patients in the emergency room to determine if hospitalization is necessary and to perform the duties of an admitting physician. The student will work as a member of the family medicine inpatient service team and will remain in the hospital until the days' work is completed. The student will have one weekend free. Three weekends will be spent working with the inpatient team.

PreRequisite: successful completion of all third-year clerkships

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Credits
- Changed Course Description

MED 700: Clinical Clerkship in Medicine (15 Credits) Old Listing Effective Through Spring 2024:

To provide supervised clinical experience in the management of patients with acute and chronic illness.

PreRequisite: restricted to medical students who have completed required preclinical training

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Credits
- Changed Prerequisites
- Changed Course Description

OBGYN 700: Obstetrics and Gynecology (10 Credits)

Old Listing Effective Through Spring 2024:

Required clerkship providing supervised clinical experience in obstetrics and gynecology.

PreRequisite: limited to medical students who have completed preclinical courses

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Credits
- Changed Prerequisites
- Changed Course Description

OBGYN 722: Maternal Fetal Medicine Acting Internship (5 Credits)

Old Listing Effective Through Spring 2024:

The Acting Internship in Maternal Fetal Medicine focuses on expanding baseline knowledge in obstetrics, and to focus on complex and unique care of pregnancies complicated by maternal and fetal medical and surgical co-morbidities. It is the intention for the acting intern to be exposed to facets of the sub-specialty, including inpatient and outpatient consultative services, rounding on and coordination of care for the inpatient service at Hershey Medical Center, surgical exposure with Maternal Fetal Medicine sub-specialists and increased exposure to fetal ultrasound.

Changes Effective Summer 2024:

- Changed Credits

PED 700: Pediatric Clinical Clerkship (10 Credits)

Old Listing Effective Through Spring 2024:

Clinical experience in the management of the newborn, of the normal infant, and children with acute and chronic illness.

PreRequisite: restricted to medical students who have completed required preclinical training

Changes Effective Summer 2024:

- Changed Course Title
- Changed Credits
- Changed Prerequisites
- Changed Course Description

PED 770: Pediatric Critical Care Medicine Acting Internship (5 Credits)

Old Listing Effective Through Spring 2024:

Experience in pediatric critical care medicine.

PreRequisite: Successful completion of the pediatric core clerkship

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Credits
- Changed Course Description

PED 780: Pediatrics Acting Internship (5 Credits)

Old Listing Effective Through Spring 2024:

Reinforces and expands the principles of inpatient pediatric care for fourth-year medical students motivated to perform as acting interns.

PreRequisite: Successful completion of the third year core clerkships

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Credits
- Changed Course Description

PSCHT 700: Psychiatry Clinical Clerkship (5 Credits)

Old Listing Effective Through Spring 2024:

Clinical experience in the management of patients with psychiatric disorders.

PreRequisite: limited to medical students who have completed required preclinical courses

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Credits
- Changed Prerequisites
- Changed Course Description

SHS 711: Science of Health Systems (4 Credits)

Old Listing Effective Through Spring 2024:

Students will learn the foundations of health systems through in class instruction and patient navigation clinical site experiences.

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title

SHS 712: Science of Health Systems (4 Credits)

Old Listing Effective Through Spring 2024:

Students will learn the foundations of health systems through in class instruction and patient navigation clinical site experiences.

Prerequisite: Satisfactory completion of SHS 711 (Fall)

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title

SURG 700: Surgical Core Clerkship (15 Credits)

Old Listing Effective Through Spring 2024:

Fundamental surgical course for medical students designed to provide basic surgical information and clinical exposure.

PreRequisite: completion of first two years of medical school

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Credits
- Changed Prerequisites
- Changed Course Description

SURG 710: General Surgery Acting Internship (5 Credits)

Old Listing Effective Through Spring 2024:

Four week General Surgery Acting Internship.

PreRequisite: successful completion of all third year clerkships and pre-conference with course director

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Credits
- Changed Course Description

About the College of Medicine

Penn State College of Medicine is committed to enhancing the quality of life through improved health, the professional preparation of those who will serve the health needs of others, and the discovery of knowledge that will benefit all. We're dedicated to demonstrating our core values: respect, integrity, teamwork and excellence.

Penn State College of Medicine is part of an academic medical center group that also includes:

- Penn State Health Milton S. Hershey Medical Center (<https://www.pennstatehealth.org/locations/milton-s-hershey-medical-center/>), the flagship hospital, a 551-bed, tertiary-care facility that serves central Pennsylvania;
- Penn State Children's Hospital (<https://www.pennstatehealth.org/childrens/>), the only Level I pediatric trauma center between Philadelphia and Pittsburgh; and
- Penn State Medical Group (<https://www.pennstatehealth.org/locations/>), the academic physician practice and associated outpatient practice sites of our group.

We prepare students to become patient-centric physicians and physician assistants. The MD Program provides unique learning opportunities, such as the patient navigator program and a longitudinal humanities curriculum. The Physician Assistant Program emphasizes critical thinking skills, compassionate care, and improving health in an efficient and cost-conscious manner.

Mission and Values

Our Mission

Penn State Health Milton S. Hershey Medical Center, Penn State College of Medicine, and Penn State Children's Hospital are committed to enhancing the quality of life through improved health, the professional preparation of those who will serve the health needs of others, and the discovery of knowledge that will benefit all.

Education

We are committed to the education (<https://med.psu.edu/education-admissions/>) of medical and nursing students, basic science graduate students, medical residents and fellows, other students in healthcare related professions, and practicing health professionals. We seek to enroll students of exceptional quality, and their education will be based on the present and future health needs of the Commonwealth of Pennsylvania and the nation. Special recognition is given to the education of primary care providers.

Patient Care

Our objective is to provide a range of fully integrated patient care services (<https://www.pennstatehealth.org>) for the people of central Pennsylvania and beyond. These services will extend from prevention of illness and maintenance of health through primary medical care to the highly sophisticated patient care expected at the nation's premier academic medical centers.

Research

We strive to be a national leader in pursuing scientific investigation (<https://med.psu.edu/research/>) and developing programs to advance medical and scientific knowledge, which will ultimately contribute to the health of the public, the practice of medicine, and the education of health professionals.

Community Outreach

We will provide community outreach services (<https://med.psu.edu/community/>) to the public through health education, patient care, community activities, and applications of research. We endeavor to provide health education to the public. In turn, community support for our research missions fosters clinical applications that positively impact patient care.

Our Values

Respect

- Listen, hear, and give credit
- Embrace our diverse backgrounds, talents, and perspectives
- Be compassionate, thoughtful, considerate, and kind

Integrity

- Be the best you can be, every time
- Have moral courage to ask hard questions of ourselves and others
- Be consistent and fair

Teamwork

- Commit to working together to ensure the best experience for co-workers, patients, and trainees
- Share knowledge for the benefit of the team
- Earn the trust of your teammates

Excellence

- Align personal performance with our mission, vision, values, and strategic imperatives

- Set personal goals and exceed expectations
- Always be solution-focused

History

The “\$50 Million Phone Call”

In 1963, the M.S. Hershey Foundation offered \$50 million to The Pennsylvania State University to establish a medical school in Hershey. With this grant and \$21.3 million from the U.S. Public Health Service, the university built a medical school, research center, and teaching hospital – what is now the Penn State Health Milton S. Hershey Medical Center.

The university broke ground in 1966, and Penn State College of Medicine opened its doors to students in 1967. The Medical Center accepted its first patients in 1970.

Leading the Way in Humanities and Family Medicine

The College of Medicine was the **first in the nation** to have a dedicated Department of Humanities and a Department of Family and Community Medicine. Both were original departments, created when the college opened.

The original buildings on the Medical Center campus included the Medical Science Building and University Hospital, Animal Research Farm, Laundry and Steam Plant, and University Manor Apartments. Since 1970, the campus has grown from 318 acres to 550 acres.

Many additions have been made to the academic and patient care facilities, reflecting the steady increase in patient demand for services and the need to expand research and teaching programs.

Training Tomorrow’s Leaders in Medicine

Since the first graduation in 1969, College of Medicine students have become productive physicians and scientists.

Today, we offer degree programs (<https://med.psu.edu/education/>) in:

- Anatomy
- Biochemistry and Molecular Biology
- Bioengineering
- Cellular and Molecular Biology
- Genetics
- Homeland Security
- Immunology and Infectious Diseases
- Integrative Biosciences
- Laboratory Animal Medicine
- Microbiology and Immunology
- Molecular Medicine
- Molecular Toxicology
- Neuroscience
- Pharmacology
- Physiology
- Public Health Sciences

Nursing students from the Penn State College of Nursing (<https://www.nursing.psu.edu>) rotate through the Medical Center for clinical courses, and students from other Penn State health-related programs and other institutions come to Hershey for their clinical experience. The extended B.S. degree program for nurses is offered in conjunction with the College of Nursing.

Continuing education programs serve Medical Center and other healthcare professionals throughout Pennsylvania, with enrollment exceeding 39,000 each year.

Basic and clinical research projects to treat and cure major diseases are conducted at the College and Medical Center. Annually, this research is supported by more than \$100 million in awards from federal, state, and private agencies; businesses; and individuals.

The Medical Center is recognized as one of the nation’s premier academic health centers, recruiting faculty members who are internationally known for their accomplishments in research, education, and patient care. College of Medicine and Medical Center faculty and physicians continue to integrate the latest biomedical knowledge and technology with compassionate care of patients, while educating the next generation of scientists and physicians.

Location

Penn State College of Medicine

700 HMC Crescent Road
Hershey, PA 17033
USA

Use the "Directions" button on the map below to get specific driving directions to campus. Upon arrival on campus, follow the signs to the parking garage. A complimentary shuttle is available from the second floor of the garage; ride that to the College of Medicine entrance.

Other maps:

- Google map of all campus locations (https://drive.google.com/open/?id=1CnHnJ8LW_qHH9VPF2XybEhkndEo)
- Printable map of all campus locations (PDF) (<https://www.pennstatehealth.org/locations/milton-s-hershey-medical-center119-97793dedc8de/>)

Resources

Career Development

MORE INFORMATION ABOUT CAREER ADVISING FOR THE MD PROGRAM (<https://students.med.psu.edu/md-students/career-advising/>)

Cognitive Skills Program

Penn State College of Medicine’s Cognitive Skills Program (CSP) provides comprehensive cognitive skills development and learning support to our medical, graduate, and physician assistant students.

The CSP offers workshops, interactive learning sessions, and individual support for exploring content, processes, and thinking skills to maximize our students’ success. The CSP serves all students in the College of Medicine by providing programs to help promote effective and efficient life-long learning. The CSP also provides remediation services for students who are struggling academically.

MORE INFORMATION ABOUT THE COGNITIVE SKILLS PROGRAM (<https://students.med.psu.edu/academics/cognitive-skills-program/>)

Disability Services

The College of Medicine Disability Services work with graduate and medical students with documented disabilities. In order to provide students with disabilities every educational opportunity, disability

services will make reasonable accommodations in accordance with Section 504 Rehabilitation Act and the Americans with Disabilities Act to ensure full academic involvement while attending Penn State College of Medicine.

MORE INFORMATION ABOUT DISABILITY SERVICES (<https://students.med.psu.edu/academics/student-disability-services/>)

Harrell Health Sciences Library

All faculty, staff, and students at the Penn State College of Medicine and Penn State Health Milton S. Hershey Medical Center (including medical, graduate, physician assistant, and nursing students) have free unlimited access to the Harrell Health Sciences Library: Research and Learning Commons resources. Library collections and services support the informational needs of PSHMC users engaged in patient care, research, and education, including interlibrary loan, search services, and instruction.

The Library is part of Penn State University Libraries, ranked 9th on the Association of Research Libraries' Investment Index of North American research libraries. Penn State College of Medicine and Penn State Health Milton S. Hershey Medical Center members have access to more than 6.9 million books, almost 400,000 E-books, 110,000 online full-text journals and 706 databases. (2014/2015 data) The Libraries are increasingly electronic, allowing 24 hour access from anywhere.

The Library hosts 21 public computer workstations, a 24 hour computer lab, a 24 hour study room and several small group study rooms. Printers, scanners and copiers are available for use.

MORE INFORMATION ABOUT THE HARRELL HEALTH SCIENCES LIBRARY (<https://hershey.libraries.psu.edu/>)

Office for Diversity, Equity and Inclusion

Penn State Health and Penn State College of Medicine address diversity and inclusion from a measurable, strategic perspective that includes, as a foundation, equal employment regulatory compliance.

Our commitment is communicated in the University's diversity statement (<http://equity.psu.edu/diversity-statement/>), which provides the foundation for our initiatives, as well as in our campus' mission and vision statements on diversity, equity and inclusion (<http://med.psu.edu/diversity/mission/>).

Our goal is to be "best in class" in increasing the diversity of our students and workforce, advancing our commitment to a respectful and inclusive workforce, providing culturally excellent care for our patients and education to our students, and making discoveries that create a greater well-being for all populations, regardless of background.

MORE INFORMATION ABOUT THE OFFICE FOR DIVERSITY, EQUITY AND INCLUSION (<http://med.psu.edu/diversity/>)

Office for a Respectful Learning Environment

Our mission is to foster an educational community at Penn State College of Medicine in which all learners and educators feel supported, challenged, valued, and respected. This is a community endeavor; everyone can help, and anyone can hurt. We want every student to have a positive experience at the College of Medicine. Mistreatment arises when

behavior shows disrespect for the dignity of others and interferes with the learning process.

The LCME mandates "that the learning environment of its educational programs is conducive to the ongoing development of explicit and appropriate professional behaviors in its [learners], faculty, and staff at all locations and is one in which all individuals are treated with respect" (LCME Functions and Structure of a Medical School). Our goal is to exceed that mandate.

MORE INFORMATION ABOUT THE OFFICE FOR A RESPECTFUL LEARNING ENVIRONMENT (<https://students.med.psu.edu/academics/respectful-learning-environment/>)

Simulation Center

The mission of the Clinical Simulation Center is to improve patient outcomes with effective programs that promote and enhance practitioner skills, clinical competence, teamwork, and interdisciplinary collaboration.

To advance the field of healthcare simulation, the Center conducts innovative research into simulation theory, practice, and technology.

The Clinical Simulation Center maintains an active research program in simulation-based education and has more than 9,500 square feet of dedicated simulation space with state-of-the-art simulators.

MORE INFORMATION ABOUT THE SIMULATION CENTER (<http://med.psu.edu/simulation-center/>)

Student Health

Healthcare is provided to all medical, graduate, physician assistant and nursing students in the College of Medicine and their spouses and children. Student Health is a division of the Department of Family and Community Medicine at Milton S. Hershey Medical Center, Penn State College of Medicine.

Student Health provides comprehensive primary-care services. These include acute and chronic care for medical problems, preventive healthcare including gynecology, family planning services and well-child visits. Referrals to specialists are provided as necessary by the Student Health providers.

MORE INFORMATION ABOUT STUDENT HEALTH (<https://students.med.psu.edu/student-life/student-health/>)

Student Mental Health and Counseling

The Office of Student Mental Health and Counseling (OSMHC) is designed to meet the needs of Penn State College of Medicine students with compassion, honesty, and confidentiality. All issues are taken seriously – no problem is "too small" to talk about.

The years of graduate school and medical training can be among of the most exciting and gratifying of a person's life. However, being a student can also cause significant amounts of stress and uncertainty. During these times, students may find it helpful to have additional support and encouragement. The OSMHC is available to provide assistance and guidance students need to achieve personal and academic success.

MORE INFORMATION ABOUT STUDENT MENTAL HEALTH AND COUNSELING (<https://students.med.psu.edu/student-life/counseling/>)

Residencies and Fellowships

Penn State College of Medicine and Penn State Health Milton S. Hershey Medical Center are committed to establishing and maintaining high-quality graduate medical education training programs.

Our institution provides the diverse patient population, dedicated faculty, excellent clinical and basic science departments, and nationally recognized research programs required to create an environment optimal for learning and for the development of future leaders in the art and science of medicine.

We offer residency and fellowship training in more than 60 ACGME-accredited (<http://www.acgme.org/>) specialties and subspecialties, and numerous other specialized training programs are available.

MORE INFORMATION ABOUT RESIDENCIES AND FELLOWSHIPS (<https://residency.med.psu.edu/>)

Graduation Information

Information about graduation is available on the College of Medicine website (<https://students.med.psu.edu/graduation-information/>).

Student Handbooks

READ THE MD STUDENT HANDBOOK (<https://students.med.psu.edu/md-students/handbook/>)

READ THE PHYSICIAN ASSISTANT STUDENT HANDBOOK (<https://students.med.psu.edu/physician-assistant-student-information/handbook/>)

About Penn State

This is Penn State

Penn State is in the top 1 percent of universities worldwide and has the largest alumni network in the nation. Founded in 1855, the University combines academic rigor with a vibrant campus life as it carries out its mission of teaching, research, and service with pride and focuses on the future throughout Pennsylvania and the world. Granted the highest rating for research universities by the Carnegie Foundation, Penn State teaches students to be leaders with a global perspective.

Our leadership in administration, faculty, and staff make our mission come alive every day. The Board of Trustees reviews and approves the budget of the University and guides general goals, policies, and procedures from a big-picture perspective. The President's office ensures that all aspects of the University are running smoothly and promotes overall principles that students, faculty, and staff abide by for the long term. The University Faculty Senate represents the Penn State faculty with legislative authority on all matters regarding the University's educational interests.

Penn State strives to celebrate diversity in all aspects of its educational and operational activities and the University's strategic plans are designed to result in ongoing improvements that help prepare future generations of leaders.

Board of Trustees

The Board of Trustees of The Pennsylvania State University is the corporate body established by the charter with complete responsibility

for the government and welfare of the University and all the interests pertaining thereto including students, faculty, staff, and alumni.

In the exercise of this responsibility, the Board is guided by the following policies:

1. The authority for day-to-day management and control of the University, and the establishment of policies and procedures for the educational program and other operations of the University, shall be delegated to the President, and by him/her, either by delegation to or consultation with the faculty and the student body in accordance with a general directive of the Board.

This delegation of authority requires that the Board rely on the judgment and decisions of those who operate under its authority. However, this reliance of the Board must be based upon its continuing awareness of the operations of the University. Therefore, the Board shall receive and consider thorough and forthright reports on the affairs of the University by the President or those designated by the President. It has a continuing obligation to require information or answers on any University matter with which it is concerned.

Finally, upon request, the Board shall advise the President on any University matter of concern to him/her.

2. The Board of Trustees shall carry out certain responsibilities as a Board, without delegation. These responsibilities are:
 - a. The selection of the President of the University
 - b. The determination of the major goals of the University and the approval of the policies and procedures for implementation of such goals.
 - c. The review and approval of the operating and capital budget of the University.
 - d. Such other responsibilities as law, governmental directives, or custom require the Board to act upon.
3. The Board of Trustees shall inform the citizens of the Commonwealth of Pennsylvania of the University's performance of its role in the education of the youth of Pennsylvania.
4. The Board of Trustees shall assist the President in the development of effective relationships between the University and the various agencies of the Commonwealth of Pennsylvania and the United States of America which provide to the University assistance and direction.

MORE INFORMATION ABOUT THE BOARD OF TRUSTEES (<https://trustees.psu.edu/>)

President's Council

- Neeli Bendapudi, President (<https://www.psu.edu/president/>)
- Tracy Langkilde, Interim Executive Vice President and Provost (<https://provost.psu.edu/>)
- Jeff Adams, Interim Vice Provost and Dean for Undergraduate Education (<https://undergrad.psu.edu/>)
- Kathleen Bieschke, Vice Provost for Faculty Affairs (<https://vpfa.psu.edu/>)
- Margo E. DelliCarpini, Vice President for Commonwealth Campuses and Executive Chancellor (<https://www.campuses.psu.edu/>)
- Andrea Dowhower, Interim Vice President for Student Affairs (<https://studentaffairs.psu.edu/>)
- Shannon S. Harvey, Assistant Vice President and Secretary to the Board of Trustees (<https://trustees.psu.edu/>)

- Karen Kim, Dean, College of Medicine (<https://med.psu.edu>)
- Patrick Kraft, Vice President for Intercollegiate Athletics (<https://gopsusports.com>)
- David Lieb, Interim Vice President for Development (<https://raise.psu.edu/>) and Alumni Relations (<https://www.alumni.psu.edu/>)
- Chris Lucas, Acting Interim Vice President for Information Technology/Chief Information Officer (<https://www.it.psu.edu/>)
- Stephen M. Massini, Chief Executive Officer, Penn State Health (<https://www.pennstatehealth.org/locations/milton-s-hershey-medical-center/>)
- Matt Melvin, Vice President for Enrollment Management (<https://em.psu.edu/>)
- Tabitha R. Oman, Vice President and General Counsel (<https://www.ogc.psu.edu/>)
- Rachel A. Pell, Vice President for Strategic Communications (<https://strategiccommunications.psu.edu/>)
- Andrew Read, Senior Vice President for Research (<https://www.research.psu.edu>)
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- Larry D. Terry II, Vice President for Outreach (<https://www.outreach.psu.edu>)
- Sara Thorndike, Senior Vice President for Finance and Business/Treasurer (<https://fandb.psu.edu/>)
- Marcus A. Whitehurst, Vice Provost for Educational Equity (<http://equity.psu.edu>)
- Jennifer R. Wilkes, Vice President for Human Resources (<https://hr.psu.edu/>) and Chief Human Resources Officer

MORE INFORMATION ABOUT UNIVERSITY LEADERSHIP (<https://www.psu.edu/this-is-penn-state/leadership/>)

Mission

The Pennsylvania State University is a multi-campus, land-grant, public research University that educates students from around the world, and supports individuals and communities through integrated programs of teaching, research, and service.

Our instructional mission includes undergraduate, graduate, professional, continuing, and extension education, offered through both resident instruction and distance learning. Our educational programs are enriched by the talent, knowledge, diversity, creativity, and teaching and research acumen of our faculty, students, and staff.

Our discovery-oriented, collaborative, and interdisciplinary research and scholarship promote human and economic development, global understanding, and advancement in professional practice through the expansion of knowledge and its applications in the natural and applied sciences, social and behavioral sciences, engineering, technology, arts and humanities, and myriad professions.

As Pennsylvania's land-grant university, we provide unparalleled access to education and public service to support the citizens of the

Commonwealth and beyond. We engage in collaborative activities with private sector, educational, and governmental partners worldwide to generate, integrate, apply, and disseminate knowledge that is valuable to society.

History

As Pennsylvania's only land-grant university, Penn State has a broad mission of teaching, research, and public service. But that mission was not so grandly conceived in 1855, when the Commonwealth chartered it as one of the nation's first colleges of agricultural science, with a goal to apply scientific principles to farming.

Centre County became the site of the new college in response to a gift of 200 acres from gentleman farmer and ironmaster James Irvin of Bellefonte. Founding President Evan Pugh drew on the scientific education he had received in Europe to plan a curriculum that combined theoretical studies with practical applications.

Pugh and similar visionaries in other states championed Congressional passage of the Morrill Land-Grant Act in 1862. The act enabled states to sell federal land, invest the proceeds, and use the income to support colleges "where the leading object shall be, without excluding scientific and classical studies ... to teach agriculture and the mechanic arts [engineering] ... in order to promote the liberal and practical education of the industrial classes in all the pursuits and professions of life." The state legislature designated Penn State the land-grant institution of Pennsylvania.

But not until the 1880s, under the leadership of President George W. Atherton, did the college expand its curriculum to match the Land-Grant Act's broad mandate. From that time onward, curricula in engineering, the sciences, the liberal arts, and more began to flourish. In the early 1900s, Penn State introduced cooperative extension and additional outreach programming, extending the reach of its academic mission.

An even greater segment of the Commonwealth's population had opportunities for engagement in the 1930s when Penn State established a series of undergraduate branch campuses, primarily to meet the needs of students who were location-bound during the Great Depression. Those campuses were predecessors of today's system of 24 Penn State campuses located throughout the Commonwealth.

Penn State began offering systematic advanced-degree work in 1922 with the formation of the Graduate School. Graduate education and research evolved hand in hand. By 1950 the University had won international distinction for investigations in dairy science, building insulation, diesel engines, and acoustics, and other specialized fields.

A college of medicine and teaching hospital were established in 1967 with a \$50 million gift from the charitable trusts of renowned chocolate magnate Milton S. Hershey. In 1989 the Pennsylvania College of Technology in Williamsport became an affiliate of the University. Penn State's online World Campus graduated its first students in 2000 and now enrolls more than 12,000. Also in 2000, Penn State and the Dickinson School of Law merged. In 2015, two Penn State law schools, Dickinson Law (in Carlisle, Pennsylvania) and Penn State Law (on University Park campus) were established.

MORE INFORMATION ABOUT UNIVERSITY HISTORY (<https://www.psu.edu/this-is-penn-state/history/>)

Accreditation Notice

The Pennsylvania State University is accredited by the Middle States Commission on Higher Education (<https://www.msche.org>), 3624 Market Street, Philadelphia, PA 19104 (267-284-5000). The Middle States Commission on Higher Education (MSCHE) is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

The Pennsylvania State University was first accredited in 1921 and accreditation was reaffirmed in June 2015.

Annual Institutional Updates are submitted each spring-summer. The last Midpoint Peer Review occurs every four years and last occurred in 2020. The next Self-Study evaluation is scheduled for 2023-2024.

According to MSCHE's policy statement, Accreditation Review Cycle and Monitoring, "The Commission's eight-year cycle of review of accredited institutions begins with an in-depth institutional self-study that is reviewed by peer evaluators during an on-site evaluation visit. The self-study and on-site review are used to assess the institution's compliance with Commission standards and requirements of affiliation, verify compliance with accreditation-relevant federal regulations, and identify areas needing improvement. The review process results in an accreditation decision in accordance with the Commission Policy Accreditation actions. Institutions submit annually an update of institutional data and other information requested by the Commission. In the fourth year following the self-study visit, the Commission conducts an off-site mid-point peer review based on the cumulative information provided by the institution. Institutions are provided a report on the institution's performance with respect to student achievement and financial sustainability."

MORE INFORMATION ABOUT THE ACCREDITATION REVIEW CYCLE (<https://msche.my.salesforce.com/sfc/p/>)

MORE INFORMATION ABOUT ACCREDITATION BY THE MIDDLE STATES COMMISSION ON HIGHER EDUCATION (<https://opair.psu.edu/accreditation/>)

Research

The Office of the Vice President for Research is responsible for facilitating the \$863-million-per-year research enterprise at Penn State by working with a broad range of units across the University.

The mission of the Office of the Vice President for Research is to support a rigorous program of faculty and student research and creative accomplishment by enhancing the environment for scholarly and artistic endeavors, encouraging the highest standards of quality, and fostering ethical conduct in research.

The office is responsible for:

- the effective administration of sponsored programs which provide the financial support for a substantial share of the research activity at the University;
- serving as the University's advocate and spokesperson on research issues, and as a representative in activities that may produce major new programs and facilities for research;
- facilitating strong programs for interdisciplinary research.

MORE INFORMATION ABOUT RESEARCH AT PENN STATE (<https://www.research.psu.edu/>)

University Structure

Undergraduate Campuses

Penn State has more than twenty campuses across Pennsylvania that serve undergraduate students and communities through teaching, research, and service. Through its network of undergraduate campuses and World Campus, Penn State provides students the opportunity to begin and complete a Penn State degree at one campus, transition to complete a degree at another campus or complete a program completely online—this is the hallmark of Penn State's unique one University concept.

The University Park campus, the administrative and research hub of the University is the largest of Penn State's campuses. Across Pennsylvania, Penn State campuses play a critical role in the land-grant mission of the University, by providing access and opportunity—a commitment that remains at the core of each campus's mission. In addition to providing the first two years of more than 160 Penn State majors, campuses confer nearly 5,000 Penn State degrees annually to students who complete their academic programs at a Penn State campus.

MORE INFORMATION ABOUT UNDERGRADUATE CAMPUSES (<https://bulletins.psu.edu/undergraduate/campuses/>)

Graduate and Professional Campuses

Penn State's wide range of graduate programs includes traditional residential Ph.D. research programs through part-time degree programs aimed at working professionals. Penn State offers graduate programs at six campuses: Penn State Erie, Penn State Great Valley, Penn State Harrisburg, Penn State College of Medicine, Penn State University Park, and Penn State World Campus. Penn State College of Medicine in Hershey, PA offers a complete medical education program leading to the Doctor of Medicine (M.D.) degree. Penn State has two separately accredited Law Schools: Dickinson Law in Carlisle, PA and Penn State Law at University Park.

MORE INFORMATION ABOUT GRADUATE AND PROFESSIONAL CAMPUSES (<https://bulletins.psu.edu/graduate/campuses/>)

Colleges

Penn State's undergraduate majors are divided among academic colleges, which are the units from which students receive their degrees. Examples of colleges are Arts and Architecture, Eberly College of Science, and Education, among others. Academic colleges offer graduate programs as well; however, graduate degrees are awarded by the Graduate School. In addition to the 12 academic colleges at the University Park campus, Penn State has six academic colleges across Pennsylvania that allow students to finish their undergraduate degrees at a campus other than University Park.

With the exception of a few specialized programs, undergraduate students interested in majors offered by the above academic colleges can start their education at any Penn State campus and then transition to University Park following their second year to complete their degree as part of the 2+2 Plan.

In addition, the Pennsylvania College of Technology in Williamsport offers undergraduate enrollments in selected degree programs.

For a list of academic colleges, enrollment units, and special academic programs visit the Undergraduate Bulletin Colleges (<https://bulletins.psu.edu/undergraduate/colleges/>) page.

Academic Colleges at Campuses

Six Penn State colleges, located throughout the state, offer undergraduate majors that are typically completed at campuses other than University Park. These colleges are:

- Abington College, at the Penn State Abington campus
- Altoona College, at the Penn State Altoona campus
- Behrend College, at the Penn State Erie campus
- Berks College, at the Penn State Berks campus
- Capital College, at the Penn State Harrisburg campus
- University College, is comprised of the following 14 campuses:
 - Penn State Beaver
 - Penn State Brandywine
 - Penn State DuBois
 - Penn State Fayette, The Eberly Campus
 - Penn State Greater Allegheny
 - Penn State Hazleton
 - Penn State Lehigh Valley
 - Penn State Mont Alto
 - Penn State New Kensington
 - Penn State Schuylkill
 - Penn State Shenango
 - Penn State Wilkes-Barre
 - Penn State Scranton
 - Penn State York

Students interested in undergraduate majors offered by these colleges can typically start at one campus and finish at another through the 2+2 plan, or they can choose to stay at one campus for all four years if their campus of choice offers the major they want. To see the specific undergraduate majors available at each campus, search majors by campus in the Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/>).

Student Services and Programs

Penn State offers thousands of resources to support students, faculty, staff, and alumni both locally and around the world. This partial list of centers, offices, and programs was developed based on past inquiries from Bulletins users.

To discover additional services explore Penn State's home page (<https://www.psu.edu/>), the Office of Student Affairs (<https://studentaffairs.psu.edu/>), and the Office of Undergraduate Education (<https://undergrad.psu.edu/>), and The Graduate School (<https://gradschool.psu.edu/>).

- Affirmative Action Office (<https://affirmativeaction.psu.edu/>)
- Adult Learner Programs & Services (<https://studentaffairs.psu.edu/adults/>)
- Campus Recreation (<https://studentaffairs.psu.edu/campusrec/>)
- Career Services (<https://studentaffairs.psu.edu/career/>)
- Child Care Resources (<https://hr.psu.edu/employee-and-family-resources/your-family/child-care-resources/>)
- Counseling and Psychological Services (<https://studentaffairs.psu.edu/counseling/>)
- Disability Services Resources (<http://equity.psu.edu/student-disability-resources/>)

- Spiritual and Ethical Development, Center for (<https://studentaffairs.psu.edu/spiritual/>)
- Financial Literacy and Wellness Center (<https://financialliteracy.psu.edu/>)
- Fraternity and Sorority Life (<https://studentaffairs.psu.edu/greeks/>)
- Gender Equity Center (<https://studentaffairs.psu.edu/genderequity/>)
- Global Programs, Office of (<https://global.psu.edu/>)
- Graduate Educational Equity Programs, Office of (<https://gradschool.psu.edu/diversity/>)
- Graduate Writing Center (<https://gwc.psu.edu/>)
- Health Services (<https://studentaffairs.psu.edu/health/>)
- Information Technology at Penn State (<https://www.it.psu.edu/>)
- Multicultural Resource Center (<http://equity.psu.edu/mrc/>)
- Off-Campus Student Support (<https://studentaffairs.psu.edu/offcampus/>)
- Outreach and Online Education (<https://www.outreach.psu.edu/>)
- Paul Robeson Cultural Center (<https://studentaffairs.psu.edu/cultural/>)
- Penn State Learning (<https://pennstatelearning.psu.edu/>)
- Residence Life (<https://studentaffairs.psu.edu/reslife/>)
- Sexual and Gender Diversity, Center for (<https://studentaffairs.psu.edu/csgd/>)
- Student Affairs, Office of (<https://studentaffairs.psu.edu/>)
- Student Care & Advocacy (<https://studentaffairs.psu.edu/studentcare/>)
- Undergraduate Research and Fellowships Mentoring (<https://urfm.psu.edu/>)
- Student Accountability and Conflict Response, Office of (<https://studentaffairs.psu.edu/student-accountability/>)
- Student Organization Directory (<https://studentaffairs.psu.edu/get-involved/student-organizations/>)
- Summer Session (<https://summersession.psu.edu/>)
- Veterans Programs, Office of (<http://equity.psu.edu/veterans/>)
- University Libraries (<https://libraries.psu.edu/>)

MD Program

Overview

Penn State College of Medicine offers a complete medical education program leading to the MD degree. Its central campus is located in Hershey, PA adjacent to Penn State Health Milton S. Hershey Medical Center, which is a part of Penn State Health's multi-hospital health system.

In addition to the program's central curriculum in Hershey, there are two parallel options within the overall medical education program. Our Accelerated Pathways are located on the central campus in Hershey, and our University Park Curriculum is located in University Park, PA.

All students will be expected to meet our 10 competencies (<https://students.med.psu.edu/md-students/medical-student-competencies-and-subcompetencies-for-graduation/>) and minimum essential standards (https://students.med.psu.edu/md-students/handbook/#question_minimumessentialstandardsformatriculationpromotionandgraduation) before graduating with an MD degree.

Our Vision

Our goal is to train humanistic, systems-ready physicians who are adaptive, critical-thinking, collaborative, and scholarly.

Traditionally, medical education has focused on two pillars: medical science and clinical care. As health care delivery rapidly shifts from physician-centric to patient-centric, and patient care involves both the care of the individual and the care of populations, a more comprehensive model is needed.

At Penn State College of Medicine, the two pillars have transformed to four:

- Biomedical Sciences
- Health Humanities
- Clinical Science
- Health Systems Sciences

Educational Options

Our curriculum options are open to all enrolled MD students. Once you're accepted for admission to Penn State College of Medicine, you will be able to apply for the specific curriculum option you want. For combined degrees (<https://med.psu.edu/combined-programs/>), you will need to meet the requirements and gain acceptance into the other program independent of the MD program.

Admission Requirements

Penn State College of Medicine is committed to developing tomorrow's diverse group of humanistic, systems-thinking physicians who will serve a broad spectrum of communities and lead in many areas of our health care system. We seek applicants who come to medicine with a passion to serve and a commitment to excellence and life-long learning. We seek students who bring a full, rigorous, and holistic backgrounds of study and experiences to medical school.

We accept students with good standing backgrounds who are, or will be, graduates of accredited colleges and universities in the U.S. or Canada before matriculation to Penn State College of Medicine. There are no restrictions on the type of major a student selects who possesses competencies in the designated prerequisite areas outlined below. The Medical College Admissions Test (MCAT) is required and used in a holistic manner with other aspects of the application in the selection process.

Prerequisite Preparation For Admission

Penn State College of Medicine recognizes that its applicants bring varied and rich undergraduate academic and personal experiences to their admissions credentials. In order to acknowledge the diversity and flexibility of our applicants' preparation, we have chosen to describe the competencies we expect of our students at the time of entry into medical school. Instead of listing prerequisite course requirements, we describe required competencies that will most often be met through traditional and/or newly established interdisciplinary courses of study in an accredited institution of higher learning. We define competency as the acquired knowledge to solve problems in the discipline. Applicants will indicate whether the acquired competency was obtained by course work or other activity such as research or work. Competitive applicants should demonstrate competency in each of the following five areas adapted from the MCAT description (<https://students-residents.aamc.org/applying-medical-school/article/whats-mcat-exam/>):

- **Biological and Biochemical Foundations of Living Systems:** The contribution of biomolecules to the structure and function of cells; the interaction of molecules, cells and organs in carrying out the functions of living organisms; the interplay of complex systems, tissues and organs in sensing internal and external environments and maintaining internal environment stability in the setting of changing external environments.
- **Chemical and Physical Foundations of Biological Systems:** Application of physical principles to explain how complex living organisms transport materials, sense their environment, process signals and respond to changes; use of principles that govern chemical interactions and reactions to form the basis for the molecular dynamics of living systems.
- **Psychological, Social and Biological Foundations of Behavior:** Biological, psychological and sociocultural factors that influence how individuals perceive, think about and react to the world; how they influence behavior and behavior change; how we think about ourselves and interact with others; and how they influence well-being and access to resources that influence well-being.
- **Critical Analysis and Reasoning Skills:** Comprehension of texts, extrapolating ideas to new contexts; assessing the impact of introducing new factors, information or conditions to ideas from the text.
- **Scientific Inquiry and Thinking & Reasoning:** Knowledge of scientific principles, scientific reasoning and problem-solving reasoning about the design and execution of research; data-based statistical reasoning; and general mathematical concepts and techniques.

Mastery of competencies is reflected by a strong performance in the classroom and on the MCAT, knowledge gained from formative experiences, and letters of recommendation. Applicants should have engaged in in-depth study based on the AAMC-HHMI Scientific Foundations for Future Physicians (<https://store.aamc.org/scientific-foundations-for-future-physicians-pdf.html>) and AAMC Behavioral and Social Science Foundations for Future Physicians (<https://store.aamc.org/behavioral-and-social-science-foundations-for-future-physicians-pdf.html>).

In addition to the above science and thinking and reasoning competencies, Penn State College of Medicine expects applicants to demonstrate achievement of interpersonal and intrapersonal competencies as described within the AAMC Core Competencies for Entering Medical Students (<https://students-residents.aamc.org/applying-medical-school/article/core-competencies/>).

Coursework and Experience

Although the most common methods of becoming competent in the areas described above will be formal coursework and personal experiences, we acknowledge that students may accomplish the learning in other ways. Alternative methods of preparation, in combination with coursework, might include research or employment experiences.

Advanced Placement Coursework

Penn State College of Medicine recognizes Advanced Placement (AP) courses for competencies only if they appear as earned credits on the applicant's college transcript. However, many of the most competitive applicants have fulfilled AP coursework in those same areas during their baccalaureate years.

Core Curriculum and Competencies

The central curriculum and the two parallel tracks share numerous curricular elements, the result of deliberate educational program design that ensures comparability. At the core, they share the same vision, core curriculum, three-phase curriculum framework, graduation and education program competencies.

MD Program Vision

To guide the development of a humanistic, systems-ready physician who is adaptive, critical-thinking, collaborative and scholarly.

Core Curriculum

The core curriculum, defined by the Committee on Undergraduate Medical Education (CUMED) is built on a four-pillar framework of 1) Biomedical Sciences, 2) Health Humanities, 3) Clinical Sciences, and 4) Health Systems Sciences.

MD Curriculum

The experience of a Penn State College of Medicine MD student comprises three phases:

- **Phase I - Foundations:** Students in Penn State College of Medicine, whether in the Hershey curriculum, one of the 3+ accelerated pathways in Hershey or the University Park curriculum, engage in two common instructional formats – small-group problem-based learning and direct patient experiences – with variations on the intensity with which each is used. For both Hershey and University Park accelerated students, lectures supplement the instructional formats. In University Park, which is a “no lecture” track, the more extensive small-group problem-based learning sessions, which are referred to as inquiry groups, and science seminars serve as the instructional formats that subsume the content expectations typically delivered in lectures. Students in any of the pathways in Hershey take the foundational courses sequentially prior to clerkships. Students in the University Park curriculum take some foundational courses before and some after clerkships.
- **Phase II - Clinical Core:** Students all complete the same seven core clerkships, though the instructional format may be in blocks or longitudinal. All students must take USMLE Step 1 before progressing to Phase III.
- **Phase III - Discovery & Residency Prep:** Two required courses – Translating Health Systems Science to the Clinical Setting and Transition to Internship are common for all students. Additionally, all students must complete two acting internships, a Humanities selective and electives to enhance their-competency-directed progression in learning, professional identity formation and residency preparation.

All students will be expected to meet the college’s list of competencies (<http://students.med.psu.edu/md-students/medical-student-competencies-and-subcompetencies-for-graduation/>) before graduating with an MD degree.

Core Competencies

The core competencies for Penn State College of Medicine are:

1. Patient Care
2. Knowledge for Practice
3. Practice-Based Learning and Improvement
4. Interpersonal and Communication Skills

5. Professional Behaviors
6. Systems-Based Practice
7. Health Humanities

Hershey Curriculum

The practice of medicine is constantly changing. Many of these changes are part of a transformation that will alter the way healthcare is organized and delivered in the future.

The three-phase curriculum is learner-centered and has been developed to prepare students for a successful career in a more integrated healthcare system. Graduates will meet all of the required competencies and subcompetencies.

The committee on undergraduate medical education, composed of faculty and students, meets regularly to evaluate and modify the curriculum to keep pace with new knowledge and changes in healthcare delivery.

About Systems Navigation

Penn State College of Medicine’s Systems Navigation Curriculum (SyNC), launched in 2014, combines a course in the science of health systems with an immersive experience as a patient navigator.

The curriculum integrates core systems sciences such as health policy, high-value care and population and public health with two threads related to evidence-based medicine; it also includes teamwork and leadership training throughout each of seven modules.

The patient navigator program provides value-added clinical systems learning roles that allow students to learn about healthcare delivery while also providing an opportunity for students to guide patients through the complicated process of getting the care they need.

MORE INFORMATION ABOUT THE PATIENT NAVIGATOR PROGRAM (<https://med.psu.edu/md/hershey/>)

Emphasis on Humanities

We value the art of healing – not just the science of it. Penn State College of Medicine was the first medical school in the United States to have a dedicated humanities department, and this focus is reflected in our curriculum:

- **Phase 1:** Humanities coursework every Tuesday morning
- **Phase 2:** Humanities stripe across clerkships (“backstory rounds”)
- **Phase 3:** Month-long humanities selective (required). Recently offered courses include:
 - Human Virtue
 - Jazz and the Art of Medicine
 - Graphic Storytelling (<https://sites.psu.edu/graphicnarratives/>)
 - Medical Narratives

Additional humanities activities include the Farmers Market in Hershey, the arts and literature journal Wild Onions (<https://sites.psu.edu/wildonions/>), and the Kienle Center Players (<https://sites.psu.edu/kienlecenter/>), a drama group.

Societies

A supportive community is powerful, especially in a rigorous learning environment like medical school. At the College of Medicine, four learning

communities — called Societies — provide a way for students and faculty to connect, encourage, and learn from each other.

Each Society has a faculty Society head, approximately seven to eight Society advisors (each clinical faculty member is assigned to five first-year, five second-year, five third-year and five fourth-year students), College of Medicine alumni (both within the College and from the community), and two to three basic science faculty.

Curriculum

Year 1

- **Transition to Medical School**

- *One week in the middle of July*
- This course, the first students attend at Penn State College of Medicine, is designed to help them make the transition to medical education and training and to begin to build some of the skills necessary for success in medical school and a career in medicine. The transition to medical school is a very important time in the life of every doctor — no longer in college or a master's program, striving for high grades as an end in and of themselves, or as a ticket to gaining admission to medical school.

These first weeks mark that time when medical students join the collegial ranks of the profession, and medical school represents the first step of on-the-job training. The Transitions series continues throughout the medical school curriculum as students transition into clinical rotations and prepare for residency.

- **Scientific Principles of Medicine**

- *End of July to mid-September*
- This course will provides a wide-range of scientific knowledge that underlies medical practice. Relevant material for SPM is drawn from biochemistry, physiology, histology, genetics, cell biology, molecular biology, and hematology. In addition, fundamental concepts of pharmacology are introduced. Because of the breadth and depth of material presented in this course, SPM is a team-taught course involving faculty with multiple expertise. As a consequence of this diversity, you will be exposed to a number of different teaching philosophies.

- **Foundations of Health Humanities**

- *End of July to end of October*
- Foundations of Health Humanities is focused on introducing habits of mind, core knowledge, and skills that students will use throughout all four years of medical school. Primary goals will be to address how cultural contexts affect medicine and health care (and vice versa), and how to think and act critically, ethically and with cultural humility in a pluralistic society. The course also focuses on issues of pressing social interest, including structural inequities like racism in medicine, justice and unconscious bias.

- **Foundations of Health Systems Science**

- *Mid-July through December*
- Foundations of Health Systems Science is the first course in the Health Systems Science longitudinal curriculum, which is focused on introducing the foundations of health systems science, including health care structure and process, health care financing, interprofessional roles and teaming, and evidence-based medicine.

Patient Experience Program

A key component of the longitudinal health systems curriculum is the patient experience program (PEP). During the first year, students will a semester serving as guides to help patients navigate through the sometimes-complicated process of getting the care they need. The goals of PEP are for students to:

- build a therapeutic patient relationship;
- take patient histories that include screening and identifying social determinants of health;
- work with the healthcare team to mitigate the social determinants of health, and;
- understand interprofessional roles and communicate with interprofessional teams.

- **Foundations of Patient-Centered Care**

- *Mid-July through mid-June, with breaks*
- Foundations of Patient-Centered Care (FPCC) is a longitudinal course that spans Phase 1 of medical school training at Penn State College of Medicine. It is administered within a student's respective Society and integrated with other courses. In FPCC, students learn communication, professionalism, history-taking, physical examination, oral presentations, written documentation and clinical reasoning. The primary goal of FPCC is to prepare students to skillfully communicate, interview, examine and assess patients during the third and fourth years of medical school (and throughout their careers). Coursework, facilitated by Society adviser coaches, includes small group and standardized patient sessions held in the College of Medicine classrooms, as well as applied clinical skills sessions held in inpatient or outpatient settings. This combination of classroom and clinical settings provides students the opportunity to apply learned skills to actual patient encounters.

- **Host Defense/Host Response**

- *Mid-September to early November*
- The Host Defense/Host Response (HDHR) course addresses how the body maintains wellness and responds to threats. The primary learning goals focus on concepts in microbiology and infectious disease, immunology and oncology. This eight-week integrated course spans September to November of the Phase I first year. Problem-based learning (PBL) serves as the course's backbone, complemented by large-group interactive sessions, patient encounters and clinical reasoning sessions. There are also opportunities to integrate Health Systems Science, Health Humanities and frontiers of inquiry to add perspective and depth to the learning experience.

- **Observation and Interpretation**

- *November to mid-December*
- Observation and Interpretation emphasizes the power and importance of observation and interpretation in the practice of medicine. Using works of fine art — painting, music, writing, photography, dance, drama — students will be challenged to refine their observational and analytical skills and to communicate their impressions and findings to others, a process similar to differential diagnosis. Experiencing the arts leads to empathy for the human condition and for individuals.

- **Cardiovascular Medicine and Respiratory Medicine**

- *Mid-November through mid-February, with breaks*
- **Cardiovascular Medicine:** Course provides exposure to basic concepts in histology/pathology, biochemistry, physiology,

pharmacology, cardiovascular and thoracic anatomy, and clinical medicine related to cardiovascular medicine.

- **Respiratory Medicine:** Introduction to normal and abnormal structure and processes of the respiratory system, principles of therapeutics and factors affecting disease treatment and prevention.
- **Health Systems Science in Context**
 - *Mid-January through May*
 - Health Systems Science in Context will build on the foundations of health systems science by focusing on the health systems science components of population health, health information technology, economics and value-based care, and healthcare policy.
- **Humanities in Context**
 - *Mid-January to mid-June, with breaks*
 - Humanities in Context seeks to develop students' humanistic sensitivity, which includes ethical sensitivity, narrative disposition, critical consciousness and navigating complexity and uncertainty. The course will be aligned with the PBL/organ system courses.
- **Renal Medicine**
 - *Mid-February to mid-March*
 - The course provides an introduction to the physiology, anatomy, pharmacology, microbiology and pathology of the kidneys and urinary tract. Topics include the relationship between structure and function of urinary system; fluid, electrolyte and acid/base homeostasis in health and disease; etiology and manifestations of common diseases of the kidneys; and cellular processes that mediate the actions of pharmacological agents active in the urinary system.
- **Form and Function and Anatomy**
 - *Mid-March through early May*
 - This course has four major and overlapping components: anatomy, rheumatology, orthopedics and dermatology. The course integrates dermatology, immunology, family medicine (sports medicine), internal medicine (rheumatology), orthopedics, pathology and pediatrics (rheumatology). The subject matter is linked as joint disease connects orthopedics and rheumatology and immunology connects rheumatology and dermatology. The lecture content and problem-based learning cases will help to illustrate the "connectedness" of this block of material.
- **Gastrointestinal Pathophysiology and Nutrition and Anatomy**
 - *Early May through mid-June*
 - This course provides exposure to the foundational basic science and advanced concepts necessary to understand the approaches used to diagnose, treat and manage disorders of nutrition, the oropharynx, esophagus, stomach, small and large bowel, pancreas, biliary system and liver. Foundational material will include integrative physiology of these organs.

The students will develop the ability to differentially diagnose, describe treatments, and review management of nutritional disorders and support as well as diseases of the GI organs and liver. The pathogenesis, pathology, differential diagnosis, clinical course and complications of GI and liver diseases will be covered, along with aspects of clinical management, especially the pharmacology of drugs used to treat them. The course will

augment large-group classroom learning opportunities with problem-based learning, wet laboratory and simulation laboratory experiences.

- **Objective Structured Clinical Examination (OSCE)**
 - *May*
 - This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.
- **Medical Student Research and Global Health**
 - *Summer, end of Year 1*
 - Over the summer, students have the opportunity to do research for the Medical Student Research project and/or participate in Global Health opportunities.

Year 2

- **Medical Student Research and Global Health**
 - *Summer, Start of Year 2*
 - Over the summer, students have the opportunity to do research for the Medical Student Research project and/or participate in Global Health opportunities.
- **Science of Health Systems**
 - *August through December, with breaks*
 - Science of Health Systems is the third course in the longitudinal health systems science curriculum. In this year 2 course, the curriculum expands its focus on the health systems science components of quality improvement and patient safety and introduces methods of design thinking and the application of Six Sigma methodology to improve population health and patient safety. This course also focuses on leadership and preparation for clerkships including individual focus systems in various clinical environments as well as providing instruction on patient-centered care for patients with disabilities.
- **Foundations of Patient-Centered Care**
 - *August through December, with breaks*
 - This course, which spans Phases I and II of medical school training at Penn State College of Medicine, is administered within each student's respective Society and is integrated with other first- and second-year courses. The course consists of three components: communication/clinical interviewing, physical examination, and integration, application and advancement teaching sessions.
- **Endocrinology/Reproductive Medicine and Anatomy**
 - *August through September*
 - The goal of this course is to learn about the general principles, physiology actions, causes and consequences of insufficiency or excess chemical messengers that function as hormones. These principles are then incorporated into the anatomy, histology and physiology of the female and male reproductive system, including pregnancy. Basic disease processes and therapeutics, including pharmacology, are also covered.

- **Communication**
 - *August through December, with breaks*
 - Communication focuses on exploring assumptions and biases that impact communication and communicating in dyads, teams, and larger systems.
 - **Neural and Behavioral Science and Anatomy**
 - *Early October to December, with breaks*
 - NBS incorporates basic neuroanatomy, neurophysiology, neurology, neuropathology, neuropharmacology, anesthesia, ophthalmology, radiology, behavioral science, and psychiatry. The goal is for students to understand the structure of the human nervous system, the biological mechanisms that underlie the functions of the nervous system, the neural basis of behavior, and the diagnosis, pathology and treatment of diseases that affect the nervous system by incorporating these topics with clinical relevance. The course also includes pathology wet labs and Neurology Day, where students interact in small groups with about 14 patients who have various neurological disorders.
 - **USMLE Study and Consolidation**
 - Upon completion of Phase I, students are given a dedicated study period for USMLE I.
 - **Clerkships**
 - *Beginning at end of February*
 - Required core clinical clerkships begin toward the end of Year 2. Clerkships are taught in two blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
 - Block 1 clerkships are March of Year 2 through August of Year 3.
 - Block 2 clerkships are September through mid-March of Year 3.
 - **Humanities Across Clerkships**
 - *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
 - Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.
 - **Health Systems in Clerkships**
 - *Throughout all clerkships*
 - Health systems is embedded in the clerkships.
 - **Objective Structured Clinical Examination (OSCE)**
 - *December*
 - This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.
- Year 3**
- **Clerkships**
 - *End of February Year 2 through mid-March of Year 3*
 - Required core clinical clerkships begin toward the end of Year 2 and continue in Year 3. Clerkships are taught in three blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
 - Block 1 clerkships are March of Year 2 through August of Year 3.
 - Block 2 clerkships are September through mid-March of Year 3.
 - **Humanities Across Clerkships**
 - *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
 - Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.
 - **Health Systems in Clerkships**
 - *Throughout all clerkships*
 - Health systems is embedded in the clerkships.
 - **Objective Structured Clinical Examination (OSCE)**
 - *Two weeks at beginning of March*
 - This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.

- **Systems-Conscious and Humanistic Medicine**

- *Two weeks at the end of March*
- Phase III begins with a two-week course in Systems-Conscious and Humanistic Medicine. This course revisits key health systems science and humanities concepts in the context of clerkships, while also preparing students for the UME to GME transition. Students will practice advanced clinical skills that require excellence in humanities and systems domains, such as how to perform quality improvement projects, effectively transition care of a patient to a night team or separate team entirely, place orders and call consults, organize a team in urgent care situations, and how to engage in an informed consent dialogue. In addition, the course includes key professional development topics such as instruction on building a personal statement for residency applications, the process of selecting residency programs to which to apply and approaches to residency interview season.

- **USMLE Study**

- *April through mid-September*
- Upon completion of Phase II clerkships, students can select a four-week dedicated study period for USMLE 2CK.

- **Phase III: Discovery and Residency Prep**

- *Starting in April*
- Students enter Phase III: Discovery and Residency Prep following USMLE Board Prep. The Discovery portion of the phase provides students with opportunities for additional career explorations, time to synthesize principles learned in Phase II and additional time for focused research. This portion of the phase includes Systems-Conscious and Humanistic Medicine.

As students confirm their residency choice, they move into the Residency Prep portion of the phase. This time provides students with opportunities to refine knowledge and skills as they prepare for entry into residencies. This portion of the phase includes variety of electives, two acting internships and a Humanities selective. Students also prepare for and take the USMLE Step 2 CK in the earlier part of Year 4. The phase is completed by the capstone course, Transition to Internship, followed by graduation.

Year 4

- **Phase III: Discover and Residency Prep**

- *July to May, with breaks*
- This portion of Phase III includes residency preparation, interviews, and the following course completions:
 - 2 acting internships at Penn State Health or Penn State College of Medicine affiliates, including:
 - 1 specialty-based core acting internship and
 - 1 critical care or emergency medicine core acting internship
 - 1 humanities selective
 - 24 weeks of electives (including at least 12 weeks at Penn State Health or College of Medicine Affiliates)
 - 2 or more 4-week clinical rotations must taken within 5 months of graduation
 - Translating Health Systems course
 - Transition to Internship course

- **Transition to Internship**

- *Beginning of May to mid-May*
- The Transition to Internship course occurs at the end of each student's medical school career and builds on these concepts in preparation for residency training. Transition to Internship is the final requirement for each graduating fourth-year medical school class, taking place just prior to medical school graduation. Its structure includes both large group workshops (involving the entire fourth-year class) and a number of small group "selective" sessions. Transition to Internship was designed with goals of providing review and practice of key clinical skills and concepts, as well as introduction of new information regarding communication and collaboration with other health professionals, teaching and evaluation strategies for interns in their educator roles and practice in effective patient handoffs. The course also includes time for reflection on professional responsibilities, personal stressors and individual support systems.

- **Graduation**

- *Mid-May*
- See the graduation section of this site (<https://students.med.psu.edu/graduation-information/>) for more details.

University Park Curriculum

Penn State College of Medicine has a tradition of excellence in education that is scientifically and clinically rigorous with a deep foundation in scholarship and humanistic care. Building on our experience, and benefiting from the resources offered at University Park, we invite you to learn in an environment that fosters inter-professional team skills, curiosity and a commitment to the calling of medicine.

The University Park Curriculum has been developed to build on the strong tradition of the Penn State College of Medicine, recognizing the unique opportunities provided by the combination of:

- a community-based health care system;
- a diverse, research-intensive university; and
- medical school faculty dedicated to creating innovative and meaningful educational programs.

The full integration of the basic and clinical sciences with health systems science and health humanities, along with community engagement and active, experiential learning strategies, form the centerpiece of the educational mission of the University Park Curriculum.

Curriculum Highlights

Patient-based Experiences

Immersion with patients and health care systems from the first days of medical school, integrated with active small group discussions, will drive your professional development as you explore the basic and clinical sciences, health systems science and the health humanities.

Individualized Mentoring

Our small class size allows for one-on-one mentoring from our core faculty as well as longitudinal learning relationships with a diverse group of health professionals in our clinical practice and community service sites. This entire program of individualized "coaching" will ensure you are able to take full advantage of your experiential learning opportunities.

Experiential Learning

We all learn best when we can connect skills and knowledge to our own experience. The University Park Curriculum is designed for you to anchor

and motivate your learning in the patients and healthcare communities that you encounter, supported by colleagues, faculty and ready access to the rich resources of the College of Medicine and Penn State.

Community Engagement

You will collaborate with patients, community representatives and systems sites to learn and develop community-based solutions that improve healthcare outcomes.

A Culture of Respect and Humanistic Care

Penn State College of Medicine was the first medical school in the nation to have a Department of Humanities and we remain committed to fostering the development of humanistic, curious health care professionals. The University Park Curriculum has been specifically designed to support and enhance the role of the health humanities through patient experiences, integrated small group reflection, and faculty mentorship.

Curriculum

Year 1

- **Transition to Medicine**
 - *Last half of July*
 - This time helps you transition to University Park and build skills necessary for success in medicine.
 - These first weeks are when you join the collegial ranks of the profession, and begin first steps of your on-the-job training.
- **Patients and Sciences 1**
 - *Middle of July to middle of December, with November break*
 - The clinical experiences in Patients and Sciences 1 engage students in meaningful, patient-centered roles within primary care practice sites. Students bring patient cases to inquiry group (IQ) sessions to co-create learning objectives around the four core Penn State College of Medicine pillars (Biomedical, Health Humanities, Health Systems and Clinical Sciences) with faculty facilitators. Students then research the learning objectives for collaborative discussion, practical application, and additional question generation through the rest of the week and beyond. Students learn history, physical exam, and presentation skills in PS1 and PS2 and practice these skills in their clinical immersion sites. In addition to the IQ groups and clinical immersions, students participate in collaborative science tutorials for deeper exploration of biomedical science concepts.
 - A week of reflection and assessment occurs in October and December.
- **Patients and Sciences 2**
 - *January to June*
 - The experiences in Patients and Sciences 2 build on what is learned in Patients and Sciences 1.
 - Primary Care Immersion is an integral part of Patients and Sciences 2 in the University Park Curriculum.
 - A week of reflection and assessment occurs in March and May. These weeks are reserved for reflection on educational goals and accomplishment and formal assessment.
- **Assessment Weeks**
 - Assessment periods occur at four points during Year 1.

- **Portfolio Development**

- *Ongoing*
- Portfolios are part of the assessment process for medical students at Penn State College of Medicine. Written reflection assignments woven throughout the substance of PS1 and PS2 become part of each student's learning portfolio, and these portfolios become the record of the students' personal and professional growth through medical school. There is time set aside at the end of the first year for students to bring their portfolios up to date.

- **Medical Student Research and Global Health**

- *Summer, end of Year 1*
- All students must complete a student-driven research project during the course of their studies in medical school. During the summer of the first year, students have the opportunity to do research for the Medical Student Research project (<https://students.med.psu.edu/msr/>) and/or participate in global health opportunities (<https://med.psu.edu/global-health/>).

Year 2

- **Transition to Clerkships**

- *Beginning of Year 2*
- This course focuses on successfully transitioning students from preclinical to clinical training, building on the knowledge and clinical skills covered in Phase I. It includes advanced clinical skills training through simulation as well as several fundamental medical principles from various specialties that will be expanded and reinforced in subsequent clerkships. In addition, roles and responsibilities of a second-year medical student are covered through discussions on reflection, professionalism, and communication.

- **Longitudinal Integrated Clerkships**

- *Year 2*
- Required core clinical clerkships in internal medicine, family and community medicine, psychiatry, neuroscience, obstetrics and gynecology, pediatrics and surgery take place in Year 2. The clerkships are structured in a longitudinal integrated clerkship (LIC) fashion, taking advantage of long-term continuity relationships with the physicians, patients and practices within the State College community

- **Patients and Sciences 3: Integrated Science, Humanities and Health Systems in Clerkships**

- The Patients and Sciences 3 (PS3) portion of the second year is a formal didactic educational experience. All second-year University Park Curriculum medical students will return to the "classroom" for sessions focused on building an integrated approach into the medical students' clinical training.
- Health Systems Sciences component of Patients and Sciences 3 is also known as Marsh Rounds (named in honor of E. Eugene Marsh, MD, who was the founding dean of the University Park Curriculum and who continues to be a valued educator in the University Park Curriculum) focuses on building an integrated sciences approach into second-year medical students' clinical training. Mastery of the processes covered by the course will enhance the student's ability to think critically about complex, clinical problems through the respective lenses of biomedical sciences, systems and social sciences. This includes one-on-one clinical reasoning coaching with core faculty, group discussion of

real time clinical cases, and expert didactic sessions on important topics

- **Humanities Across Clerkships (HAC)** is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to humanities and career development. This course will promote discussion of the application of concepts in humanities from the pre-clerkship curriculum to the practice of clinical medicine and skills in career development with respect to the clinical learning environment. In doing so, medical students will work together in small-groups to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to talk about stressors and challenges. The sessions will be run in a virtual format and will be facilitated by a trained faculty member in a safe, nurturing, and cultivating environment.

- By the end of the course, medical students will be able to reflect the challenges of and changes to professional identity while interacting with the clinical learning environment; use individualized skills and tools to advance career development; use respectful and compassionate communication amongst group members all while describing conflicts and tensions observed within the healthcare system, professional behaviors observed, and effective feedback methods as well as recognizing one's own biases and emotions all while delivering patient care.
- This course will run from the start of clerkships till the end in a virtual format with small-groups meeting bi-weekly for hour-long sessions. Each group will have a faculty facilitator and 1-2 student facilitators. Some sessions will be a free space reserved for medical students to feel welcome to discuss any experiences, and other sessions will have a set topic for discussion with respect to humanities or career development. Students will be assessed based on attendance, participation, and completion of reflective writing assignments.

- **Ambulatory Medicine Clerkship** is a clerkship that involves spending 4 weeks embedded within an ambulatory setting throughout Penn State Health's academic health system and the communities it serves. Ambulatory settings include physician offices, urgent care clinics, outpatient surgical facilities, and specialty clinics. Students will grow their history, physical, assessment, and plan skills for the types of patients receiving care at their particular site. Through this experiential learning opportunity, students will be challenged to understand their patients' healthcare values through their life stories. Students will utilize more in-depth history-taking during individual patient encounters. In addition, students will apply Health System Science and Humanities Principles to a core project. The student schedule will be focused on one particular ambulatory site with preceptors specific to that site. Students will have 2-3 half days with no assigned clinical duties during which they are expected to complete assessments.

- **Complex Interprofessional Care (CIC) Course**

- Course goal is to appraise and develop competence in the delivery of age- and dementia-friendly care to both healthy and medically complex older adults across interprofessional ambulatory settings that include post-acute care (PAC), specialty care, and day hospital care settings.
- Course Overview
 - Health systems structure and process, including Age-Friendly Health Systems
 - Geriatrics and Geriatrics Syndromes and medical complexity
 - Malignancy and aging with illness

- Interprofessional teaming and collaboration
- Coordination of care and Resourcing Care Partners
- Advance care planning in context
- Holistic care

- **Assessment**

- There are seven clerkship exams during Year 2.

Year 3

- **Patients and Sciences 4**

- *Late July through mid-December*
- The experiences in Patients and Sciences 4 are designed to build on what is learned in Patients and Sciences 1 and 2 and 3. PS4 is offered in the fall semester of the third year in the University Park Curriculum. Basic science and clinical faculty facilitate this course, which is conducted in small-group discussions. The course is designed to elaborate and extend medical student learning in the foundational sciences as it relates and applies to the practice of evidence-based and patient-centered medical care.

- **Longitudinal Clinical Exploration**

- *Ongoing*
- During PS4, each student will continue to engage in clinical experiences, working in and exploring specialties and subspecialties of their choosing, which will help guide their decision in and prepare for their future residency.

- **Assessment**

- There are weekly formative quizzes and two summative exams.
- Two reflective writing exercises are submitted based on the students longitudinal clinical experience and are kept for the learner portfolio.

- **USMLE Study**

- *USMLE study begins midway through the third year.*
- The University Park Curriculum, with immersive and early clinical experiences, facilitates deep learning of concepts in science and medicine. This will establish a solid foundation for USMLE board preparation. In addition, collaborative science seminars, continuous exposure to board study questions, the second-year integrated clinical sciences and medical humanities and health systems sessions, the return to foundational science in PS4 and ample dedicated study time before the exam will combine with recognized external study and assessment programs to support successful student performance. Personnel from the Cognitive Skills Program schedule regular meetings with the students in order to optimize their preparation for this examination.
- Students are required to take USMLE Step 1 prior to the start of the Translating Health Systems course.

- **Translating Health Systems**

- *Two weeks at end of February and beginning of March timeframe*
- Phase III begins with a two-week Translating Health Systems intersession. This course is designed to help students apply concepts of patient safety, quality improvement, value and teams to the clinical setting. It provides students with opportunities to actively identify patient safety issues and develop a quality improvement project proposal. By design, this course emphasizes teamwork, an essential component in providing quality patient care. The goal is to guide learning in these concepts so that students will have the base knowledge to help improve care

of their patients and the health system in which they will work during the fourth year of medical school and in residencies.

- **Phase III: Discovery and Residency Prep**

- Starting in March students enter Phase III: Discovery and Residency Prep following USMLE Board Prep. The Discovery portion of the phase provides students with opportunities for additional career explorations, time to synthesize principles learned in Phase II and additional time for focused research. This portion of the phase includes the Translating Health Systems course, where students apply learned health systems principles.
- As students confirm their residency choice, they move into the Residency Prep portion of the phase. This time provides students with opportunities to refine knowledge and skills as they prepare for entry into residencies. This portion of the phase includes variety of electives, two acting internships and a Humanities selective. Students also prepare for and take the USMLE Step 2 CK in the earlier part of Year 4. The phase is completed by the capstone course, Transition to Internship, followed by graduation.

Year 4

- **USMLE STEP 2 CK**
 - *Early part of Year 4*
 - Students prepare for and take USMLE Step 2 CK towards the early part of Year 4.
- **Phase III: Discovery and Residency Prep**
 - *March to May of the following year, with breaks*
 - This portion of Phase III includes residency preparation, interviews and the following:
 - 2 acting internships at Penn State Health or Penn State College of Medicine affiliates, including:
 - 1 specialty-based core acting internship and
 - 1 critical care or emergency medicine core acting internship
 - 1 humanities selective
 - 24 weeks of electives (including at least 12 weeks at Penn State Health or Penn State College of Medicine affiliates)
 - 2 or more 4-week clinical rotations must be taken within 5 months of graduation
 - Translating Health Systems course
 - Transition to Internship course
 - All graduation requirements are confirmed to be completed during this time. The College of Medicine offers a variety of clinical, teaching and research electives for students during this phase.
- **Transition to Internship**
 - *Beginning of May to mid-May*
 - The Transition to Internship course occurs at the end of each student's medical school career and builds on these concepts in preparation for residency training. Transition to Internship is the final requirement for each graduating fourth-year medical school class, taking place just prior to medical school graduation. Its structure includes both large group workshops (involving the entire fourth-year class) and a number of small group "selective" sessions. Transition to Internship was designed with goals of providing review and practice of key clinical skills and concepts, as well as introduction of new information regarding communication and collaboration with other health professionals, teaching and evaluation strategies for interns in their educator roles and practice in effective patient handoffs. The course also

includes time for reflection on professional responsibilities, personal stressors and individual support systems.

- **Graduation**

- *Mid-May*
- See the graduation section of this site (<https://students.med.psu.edu/graduation-information/>) for more details.

Accelerated Hershey Curriculum

Penn State College of Medicine has a portfolio of 3+ pathways that allow students to select a concentration of study that will enhance/accelerate their professional development. Penn State College of Medicine is a member of the national Consortium of Accelerated Medical Pathway Programs (<https://www.acceleratedmdpathways.org/>) (CAMPP), initially funded by the Josiah Macy Jr. Foundation.

Option 1: Three-Year MD Accelerated Pathways

The three-year MD Accelerated Pathways provide students the opportunity to complete medical school in three years with directed pathway into one of Penn State's residency programs, pending successful completion of their medical school training. Upon meeting the academic and professional standards for graduation from medical school, students are ranked to match into a Penn State Health residency program through the National Resident Matching Program®. Should students choose to rank Penn State, they would be positioned to match at Penn State College of Medicine for residency.

Penn State's accelerated MD Program is unique in that its pathways are designed to optimize the UME-GME continuum and allow students who already know their career path to progress into one of these specialties: family medicine, internal medicine and psychiatry. There are also accelerated pathways that are designed to accommodate the timelines for MD/PhD students in dermatology, neurosurgery and otolaryngology.

The benefits of the accelerated options include reduction of medical education costs and earlier career entry. The linkage of undergraduate and graduate medical education optimizes opportunities for continuity of patient care, mentoring and advising.

Option 2: Clinician Scientist and Clinician Educator Pathways

These pathways allow students to achieve school-wide competencies and complete the core graduation requirements in approximately three years while devoting the majority of the fourth year of medical school to either research (Clinician Scientist Pathway) or a Master of Education degree (Clinician Educator Pathway).

MORE INFORMATION ABOUT THE ACCELERATED HERSHEY CURRICULUM (<https://med.psu.edu/md/accelerated/>)

Curriculum

Year 1

- **Transition to Medical School**

- *One week in the middle of July*
- This course, the first students attend at Penn State College of Medicine, is designed to help them make the transition to medical education and training and to begin to build some of the skills necessary for success in medical school and a career in medicine. The transition to medical school is a very important time in the life of every doctor – no longer in college or a master's

program, striving for high grades as an end in and of themselves, or as a ticket to gaining admission to medical school.

These first weeks mark that time when medical students join the collegial ranks of the profession, and medical school represents the first step of on-the-job training. The Transitions series continues throughout the medical school curriculum as students transition into clinical rotations and prepare for residency.

- **Scientific Principles of Medicine**

- *End of July to mid-September*
- This course provides a wide-range of scientific knowledge that underlies medical practice. Relevant material for SPM is drawn from biochemistry, physiology, histology, genetics, cell biology, molecular biology and hematology. In addition, fundamental concepts of pharmacology are introduced. Because of the breadth and depth of material presented in this course, SPM is a team-taught course involving faculty with multiple expertise. As a consequence of this diversity, you will be exposed to a number of different teaching philosophies.

- **Foundations of Health Humanities**

- *End of July to end of October*
- Foundations of Health Humanities is focused on introducing habits of mind, core knowledge, and skills that students will use throughout all four years of medical school. Primary goals will be to address how cultural contexts affect medicine and health care (and vice versa), and how to think and act critically, ethically and with cultural humility in a pluralistic society. The course also focuses on issues of pressing social interest, including structural inequities like racism in medicine, justice and unconscious bias.

- **Foundations of Health Systems Science**

- *Mid-July through December*
- Foundations of Health Systems Science is the first course in the Health Systems Science longitudinal curriculum, which is focused on introducing the foundations of health systems science, including health care structure and process, health care financing, interprofessional roles and teaming, and evidence-based medicine.

Patient Experience Program

A key component of the longitudinal health systems curriculum is the patient experience program (PEP). During the first year, students will a semester serving as guides to help patients navigate through the sometimes-complicated process of getting the care they need. The goals of PEP are for students to:

- build a therapeutic patient relationship;
- take patient histories that include screening and identifying social determinants of health;
- work with the healthcare team to mitigate the social determinants of health, and;
- understand interprofessional roles and communicate with interprofessional teams.

- **Foundations of Patient-Centered Care**

- *Mid-July through mid-June, with breaks*
- Foundations of Patient-Centered Care (FPCC) is a longitudinal course that spans Phase 1 of medical school training at Penn State College of Medicine. It is administered within a student's

respective Society and integrated with other courses. In FPCC, students learn communication, professionalism, history-taking, physical examination, oral presentations, written documentation and clinical reasoning. The primary goal of FPCC is to prepare students to skillfully communicate, interview, examine and assess patients during the third and fourth years of medical school (and throughout their careers). Coursework, facilitated by Society adviser coaches, includes small group and standardized patient sessions held in the College of Medicine classrooms, as well as applied clinical skills sessions held in inpatient or outpatient settings. This combination of classroom and clinical settings provides students the opportunity to apply learned skills to actual patient encounters.

- **Host Defense/Host Response**

- *Mid-September to early November*
- The Host Defense/Host Response (HDHR) course addresses how the body maintains wellness and responds to threats. The primary learning goals focus on concepts in microbiology and infectious disease, immunology and oncology. This eight-week integrated course spans September to November of the Phase I first year. Problem-based learning (PBL) serves as the course's backbone, complemented by large-group interactive sessions, patient encounters and clinical reasoning sessions. There are also opportunities to integrate Health Systems Science, Health Humanities and frontiers of inquiry to add perspective and depth to the learning experience.

- **Observation and Interpretation**

- *November to mid-December*
- Observation and Interpretation emphasizes the power and importance of observation and interpretation in the practice of medicine. Using works of fine art — painting, music, writing, photography, dance, drama — students will be challenged to refine their observational and analytical skills and to communicate their impressions and findings to others, a process similar to differential diagnosis. Experiencing the arts leads to empathy for the human condition and for individuals.

- **Cardiovascular Medicine and Respiratory Medicine**

- *Mid-November through mid-February, with breaks*
- **Cardiovascular Medicine** Course provides exposure to basic concepts in histology/pathology, biochemistry, physiology, pharmacology, cardiovascular and thoracic anatomy, and clinical medicine related to cardiovascular medicine.
- **Respiratory Medicine:** Introduction to normal and abnormal structure and processes of the respiratory system, principles of therapeutics and factors affecting disease treatment and prevention.

- **Health Systems Science in Context**

- *Mid-January through May*
- Health Systems Science in Context will build on the foundations of health systems science by focusing on the health systems science components of population health, health information technology, economics and value-based care, and healthcare policy.

- **Humanities in Context**

- *Mid-January to mid-June, with breaks*
- Humanities in Context seeks to develop students' humanistic sensitivity, which includes ethical sensitivity, narrative

disposition, critical consciousness and navigating complexity and uncertainty. The course will be aligned with the PBL/organ system courses.

- **Renal Medicine**

- *Mid-February to mid-March*

The course provides an introduction to the physiology, anatomy, pharmacology, microbiology and pathology of the kidneys and urinary tract. Topics include the relationship between structure and function of urinary system; fluid, electrolyte and acid/base homeostasis in health and disease; etiology and manifestations of common diseases of the kidneys; and cellular processes that mediate the actions of pharmacological agents active in the urinary system.

- **Form and Function and Anatomy**

- *Mid-March through early May*
- This course has four major and overlapping components: anatomy, rheumatology, orthopedics and dermatology. The course integrates dermatology, immunology, family medicine (sports medicine), internal medicine (rheumatology), orthopedics, pathology and pediatrics (rheumatology). The subject matter is linked as joint disease connects orthopedics and rheumatology and immunology connects rheumatology and dermatology. The lecture content and problem-based learning cases will help to illustrate the "connectedness" of this block of material.

- **Gastrointestinal Pathophysiology and Nutrition and Anatomy**

- *Early May through mid-June*
- This course provides exposure to the foundational basic science and advanced concepts necessary to understand the approaches used to diagnose, treat and manage disorders of nutrition, the oropharynx, esophagus, stomach, small and large bowel, pancreas, biliary system and liver. Foundational material will include integrative physiology of these organs.

The students will develop the ability to differentially diagnose, describe treatments, and review management of nutritional disorders and support as well as diseases of the GI organs and liver. The pathogenesis, pathology, differential diagnosis, clinical course and complications of GI and liver diseases will be covered, along with aspects of clinical management, especially the pharmacology of drugs used to treat them. The course will augment large-group classroom learning opportunities with problem-based learning, wet laboratory and simulation laboratory experiences.

- **Objective Structured Clinical Examination (OSCE)**

- *May*
- This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.

- **Medical Student Research**

- *Years 1 and 2*
- Throughout Years 1 and 2, students have the opportunity to do research for the Medical Student Research project.

- **Acceleration Clerkships/Electives**

- *January through August*
- This is the time when students will be accelerating their education to allow them to finish in three years.

- **Additional Pathway Courses**

- *January Year 1 through December Year 2*
- Additional pathway courses could include a Career Confirmation Elective, Longitudinal Elective, Longitudinal Medicine Clerkship, the Medical Home Longitudinal Course, and/or the Longitudinal Neuroscience Clerkship, depending upon which pathway a student is enrolled in.

Year 2

- **Medical Student Research**

- *Years 1 and 2*
- Throughout Years 1 and 2, students have the opportunity to do research for the Medical Student Research project.

- **Science of Health Systems**

- *August through December, with breaks*
- Science of Health Systems is the third course in the longitudinal health systems science curriculum. In this year 2 course, the curriculum expands its focus on the health systems science components of quality improvement and patient safety and introduces methods of design thinking and the application of Six Sigma methodology to improve population health and patient safety. This course also focuses on leadership and preparation for clerkships including individual focus systems in various clinical environments as well as providing instruction on patient-centered care for patients with disabilities.

- **Foundations of Patient-Centered Care**

- *August through December, with breaks*
- This course, which spans Phases I and II of medical school training at Penn State College of Medicine, is administered within each student's respective Society and is integrated with other first- and second-year courses. The course consists of three components: communication/clinical interviewing, physical examination, and integration, application and advancement teaching sessions.

- **Endocrinology/Reproductive Medicine and Anatomy**

- *August through September*
- The goal of this course is to learn about the general principles, physiology actions, causes and consequences of insufficiency or excess chemical messengers that function as hormones. These principles are then incorporated into the anatomy, histology and physiology of the female and male reproductive system, including pregnancy. Basic disease processes and therapeutics, including pharmacology, are also covered.

- **Communication**

- *August through December, with breaks*
- Communication focuses on exploring assumptions and biases that impact communication and communicating in dyads, teams, and larger systems.

- **Neural and Behavioral Science and Anatomy**

- *Early October to December, with breaks*
- NBS incorporates basic neuroanatomy, neurophysiology, neurology, neuropathology, neuropharmacology, anesthesia,

ophthalmology, radiology, behavioral science, and psychiatry. The goal is for students to understand the structure of the human nervous system, the biological mechanisms that underlie the functions of the nervous system, the neural basis of behavior, and the diagnosis, pathology and treatment of diseases that affect the nervous system by incorporating these topics with clinical relevance. The course also includes pathology wet labs and Neurology Day, where students interact in small groups with about 14 patients who have various neurological disorders.

- **Clerkships**

- *Beginning at end of February*
- Required core clinical clerkships begin toward the end of Year 2. Clerkships are taught in two blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
 - Block 1 clerkships are March of Year 2 through August of Year 3.
 - Block 2 clerkships are September through mid-March of Year 3.

- **Humanities Across Clerkships**

- *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
- Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.

- **Health Systems in Clerkships**

- *Throughout all clerkships*
- Health systems is embedded in the clerkships.

- **Objective Structured Clinical Examination (OSCE)**

- *December*
- This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.

- **USMLE Study**

- Upon completion of Phase I, students are given a dedicated study period for USMLE I.

- **Acceleration Clerkships/Electives/Acting Internships**

- *July through end of Year 2*
- This is the time when students will be accelerating their education to allow them to finish in three years.

Year 3

- **Clerkships**

- *End of February Year 2 through mid-March of Year 3*
- Required core clinical clerkships begin toward the end of Year 2 and continue in Year 3. Clerkships are taught in two blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
 - Block 1 clerkships are March of Year 2 through August of Year 3.
 - Block 2 clerkships are September through mid-March of Year 3.

- **Humanities Across Clerkships**

- *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
- Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.

- **Health Systems in Clerkships**

- *Throughout all clerkships*
- Health systems is embedded in clerkships.

- **Objective Structured Clinical Examination (OSCE)**

- *Mid-March*
- This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.

- **Electives and Acting Internships**

- *End of February Year 2 through end of April Year 3*
- This is the time when students will be accelerating their education to allow them to finish in three years.

- **USMLE Study**
 - *January of Year 3*
 - Upon completion of Phase II clerkships, students are given a four-week dedicated study period for USMLE II CK.
 - **Phase III: Residency Prep**
 - *Starting summer between Year 1 and 2*
 - Students enter Phase III: Residency Prep following USMLE Board Prep. This portion of the phase includes Systems-Conscious and Humanistic Medicine. This time provides students with opportunities to refine knowledge and skills as they prepare for entry into residency. This includes a variety of electives, two acting internships and a Humanities selective. The phase is completed by the capstone course, Transition to Internship, followed by graduation.
 - **Systems-Conscious and Humanistic Medicine**
 - *Two weeks at the end of March*
 - Phase III begins with a two-week course in Systems-Conscious and Humanistic Medicine. This course revisits key health systems science and humanities concepts in the context of clerkships, while also preparing students for the UME to GME transition. Students will practice advanced clinical skills that require excellence in humanities and systems domains, such as how to perform quality improvement projects, effectively transition care of a patient to a night team or separate team entirely, place orders and call consults, organize a team in urgent care situations, and how to engage in an informed consent dialogue. In addition, the course includes key professional development topics such as instruction on building a personal statement for residency applications, the process of selecting residency programs to which to apply and approaches to residency interview season.
 - **Transition to Internship**
 - *Beginning of May*
 - The Transition to Internship course occurs at the end of each student's medical school career and builds on these concepts in preparation for residency training. Transition to Internship is the final requirement for each graduating medical school class, taking place just prior to medical school graduation. Its structure includes both large group workshops (involving the entire fourth-year class) and a number of small group "selective" sessions. Transition to Internship was designed with goals of providing review and practice of key clinical skills and concepts, as well as introduction of new information regarding communication and collaboration with other health professionals, teaching and evaluation strategies for interns in their educator roles and practice in effective patient handoffs. The course also includes time for reflection on professional responsibilities, personal stressors and individual support systems.
 - **Graduation**
 - *Mid-May*
- **PC 1.1** Gather a history and perform a physical exam (EPA 1)
 - **PC 1.2** Prioritize a differential diagnosis following a clinical encounter (EPA 2)
 - **PC 1.3** Recommend and interpret common diagnostic and screening tests (EPA 3)
 - **PC 1.4** Enter and discuss orders and prescriptions (EPA 4)
 - **PC 1.5** Document a clinical encounter in the patient record (EPA 5)
 - **PC 1.6** Provide an oral presentation of a clinical encounter (EPA 6)
 - **PC 1.7** Perform general procedures of a physician (EPA 12)
 - **PC 1.8** Recognize a patient requiring urgent or emergent care and initiate evaluation and management (EPA 10)
 - **PC 1.9** Give or receive a patient handover to transition care responsibility (EPA 8)
 - **PC 1.10** Describe the informed consent process (EPA 11)
 - **PC 1.11** Demonstrate higher-order clinical reasoning
2. Knowledge for Practice: Demonstrate knowledge of and critical thinking about established and evolving biomedical, clinical and health systems sciences, as well as health humanities, and apply this knowledge to patient care.
 - **KP 2.1.** Apply biomedical, clinical, health systems sciences and health humanities to clinical decision-making in an integrated manner
 - **KP 2.2.** Contribute to research
 3. Practice-Based Learning and Improvement: Demonstrate the ability to investigate and evaluate one's care of patients, to appraise and assimilate evidence and emerging research and to improve patient care through a practice of being reflective and engaging in lifelong learning.
 - **PBLI 3.1** Engage in continuous self-assessment and identify and perform appropriate learning activities
 - **PBLI 3.2** Form clinical questions and retrieve evidence to advance patient care (EPA 7)
 - **PBLI 3.3** Apply systems and critical thinking to interrogate one's own perspectives, biases and reasoning
 4. Interpersonal and Communication Skills: Demonstrate verbal and non-verbal communication skills that show respect for and result in effective exchange of information and collaboration with patients, their families and health professionals.
 - **ICS 4.1** Communicate effectively with patients and families (EPA 11)
 - **ICS 4.2/SBP 6.1** Collaborate as a member of a team, including members of one's profession or interprofessional teams (EPA 9)
 - **ICS 4.3/PC 1.5** Document a clinical encounter in the patient record (EPA 5)
 - **ICS 4.4/PC 1.6** Provide an oral presentation of a clinical encounter (EPA 6)
 5. Professional Behaviors: Demonstrate professional behavior with patients and families, teams, health systems and society.
 - **PB 5.1/HH 7.2** Act with honesty, integrity, accountability, reliability and self-regulation, adhering to ethical norms and principles
 - **PB 5.2/HH 7.4** Identify factors contributing to resilience and respond to burnout
 - **PB 5.3/HH 7.5** Demonstrate cultural humility
 - **PB 5.4/HH 7.6** Develop and employ emotional intelligence
 6. Systems-Based Practice: Demonstrate an awareness of and responsiveness to the larger context and system of health care

Competencies and Subcompetencies for Graduation

1. Patient Care: Provide patient-centered care that is compassionate, appropriate and effective for the promotion of health and treatment of health problems.

and public health, as well as the ability to call effectively on other resources in the system to provide optimal health care

- **SBP 6.1/ICS 4.3** Collaborate as a member of a team, including members of one's profession or interprofessional teams (EPA 9)
 - **SBP 6.2** Incorporate considerations of value-based care in decisions about patients and/or populations
 - **SBP 6.3** Identify system failures and contribute to a culture of safety and improvement (EPA 13)
 - **SBP 6.4/HH 7.1** Analyze social determinants of health and other sociocultural factors affecting the health outcomes of patients, populations and communities
7. Health Humanities: Approach patients as whole persons, demonstrating compassion, humility and respect.
- **HH 7.1/SBP 6.4** Analyze social determinants of health and other sociocultural factors affecting the health outcomes of patients, populations and communities
 - **HH 7.2/PB 5.1** Act with honesty, integrity, accountability, reliability and self-regulation, adhering to ethical norms and principles for the practice of medicine
 - **HH 7.3** Employ humanities tools and concepts for wellness and clinical effectiveness
 - **HH 7.4/PB 5.2** Identify factors contributing to resilience and respond to burnout
 - **HH 7.5/PB 5.3** Demonstrate cultural humility
 - **HH 7.6/PB 5.4** Develop and employ emotional intelligence

Adapted from:

- Obeso V, Brown D, Aiyer M, Barron B, Bull J, Carter T, Emery M, Gillespie C, Hormann M, Hyderi A, Lupi C, Schwartz M, Uthman M, Vasilevskis EE, Yingling S, Phillipi C, eds.; for Core EPAs for Entering Residency Pilot Program. Toolkits for the 13 Core Entrustable Professional Activities for Entering Residency. Washington, DC: Association of American Medical Colleges; 2017.
- Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Acad Med.* 2013; 88(8):1088-94.

Accreditation

The Penn State College of Medicine's MD Program is fully accredited by the Liaison Committee on Medical Education (LCME) (<https://lcme.org>), the national accreditation authority for medical education programs leading to the MD degree in the United States and Canada.

LCME accreditation is a peer-reviewed process of quality assurance that determines whether the medical education program meets established standards. To achieve and maintain accreditation, a program leading to the MD degree in the United States and Canada must meet the LCME accreditation standards. Accreditation status is reviewed by a team of site visitors every eight years. The next review date for the College of Medicine is the 2025-2026 academic year.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

MD Program

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Hershey, PA 17033

717-531-8755

StudentAdmissions@pennstatehealth.psu.edu

Physician Assistant Program

Overview

The Penn State Physician Assistant (PA) Program, located at the Penn State College of Medicine campus in Hershey, PA, is a 24-month, full-time graduate program enrolling 30 students each May.

Our first class graduated in May 2016.

Consistent with the goals of the entire College of Medicine, the PA Program emphasizes humanism in medicine, which takes into account the dedication required for individualized and personalized medicine.

Mission & Goals

The Physician Assistant Program's mission is to prepare graduates to be academically, clinically, professionally and culturally competent in the delivery of health care services, to develop critical thinking and application skills, and to provide compassionate and comprehensive care to the patients they will serve. Our graduates will improve the health of their patients and the populations they serve in an efficient and cost-conscious manner.

We believe that the Penn State PA program will prepare its graduates for modern medical practice and that these graduates will be supremely prepared for their role as clinicians. The goals of our program are:

- To attract an academically qualified, diverse student body with special consideration for veterans and those from economically or educationally disadvantaged backgrounds (see progress toward this goal (<http://med.psu.edu/physician-assistant/goals/#goal1>))
- To promote application of learning and development of critical thinking skills (see progress toward this goal (<http://med.psu.edu/physician-assistant/goals/#goal2>))
- To enable graduates to practice competent and compassionate health care with emphasis in primary care (see progress toward this goal (<http://med.psu.edu/physician-assistant/goals/#goal3>))
- To prepare students for their role as clinicians, professionals, educators, and leaders in the physician assistant profession (see progress toward this goal (<http://med.psu.edu/physician-assistant/goals/#goal3>))
- To treat the entire patient with cultural competency, addressing physical, medical, psychosocial, and emotional dimensions of the patient (see progress toward this goal (<http://med.psu.edu/physician-assistant/goals/#goal4>))

Prerequisites

PA Program Prerequisites

Applicants will need to complete an undergraduate bachelor's degree (or equivalent) prior to matriculation into the PA Program.

We prefer that your major be in the health sciences, but this is not a mandatory requirement for application or admission. For admissions consideration, an applicant should ordinarily have:

- A CASPA-calculated overall cumulative GPA of at least 3.0
- A CASPA-calculated overall science GPA of at least 3.0

Detailed Prerequisites

We require several course prerequisites for admission consideration, although completion of this coursework is not required until the time of matriculation. Applicants can submit their CASPA and secondary applications with courses in progress or planned.

A minimum of one semester is required and science labs are strongly encouraged to supplement any science course lecture component.

Prerequisite courses are:

- General biology
- Anatomy and physiology – two semesters (or one semester each)
- Microbiology
- General or principles of chemistry
- Biochemistry or organic chemistry
- General psychology
- Statistics or bio statistics
- Two semesters of English composition (or two courses listed as writing intensive courses)

We offer conditional admission in the event that a course(s) or hours are outstanding at the time a candidate interviews with the program.

AP and CLEP Credit

AP credit that was accepted by your undergraduate institution can satisfy a number of our prerequisites including general biology, general chemistry, psychology, statistics, and English composition courses. You can also use CLEP credit to satisfy course prerequisites.

Hours

Each prerequisite can be satisfied by one full semester, typically 3 to 4 semester-hours. For applicants on a trimester schedule, five-to-six quarter hours at minimum satisfy a prerequisite.

Keep in mind that requirements to graduate with a bachelor's degree versus requirements for admission to Penn State's PA program will undoubtedly vary. For instance, completion of General Chemistry I can satisfy our prerequisite but often General Chemistry I and II are required to enroll in Organic Chemistry I at most institutions.

Online Courses

We accept online courses from regionally accredited institutions.

Currency and Exceptions

Three prerequisites have a five-year currency. They are:

- Anatomy (or A&P I)
- Physiology (or A&P II)
- Microbiology

This currency requirement will be waived for any applicant who has been working full time and continuously in the healthcare field since completing the coursework.

English Composition Courses

Any course that the institution deems as having satisfied a "writing intensive" will suffice. The course can be in any major and does not need to be an English-major based course. Additionally, if completion of a bachelor's degree incorporates writing across the curriculum, please share this information with the admissions committee.

Healthcare Experience

For admission consideration, a candidate should have 500 hours of health care experience (paid or volunteer). These hours can be in progress or planned during the application cycle, and you can update the program directly to add hours accrued after initial submission of the CASPA and secondary application. Hours must be completed by the time a candidate would matriculate into the program.

While our program is flexible in accepting a wide variety of hours to help satisfy the 500-hour requirement, hours as a personal trainer or lifeguard are unacceptable.

Technical Standards

The technical standards for Penn State College of Medicine's Physician Assistant Program have been established to ensure that students have the ability to demonstrate academic mastery, competence when performing clinical skills, and ability to communicate clinical information.

LEARN MORE ABOUT OUR TECHNICAL STANDARDS (<https://students.med.psu.edu/physician-assistant-student-information/technical-standards/>)

Curriculum

Graduation Requirements

Graduation requirements for PA students include:

- Satisfactorily completing all requirements in the specified curriculum and in good academic standing
- Attainment of good professional standing
- Enrollment in the program for the time period specified by the professional accrediting body, if applicable
- Successful passage of a summative experience and final evaluation
- Recommendation for graduation by the faculty of the specific program and the general faculty
- Satisfaction of all financial obligations to Pennsylvania State University College of Medicine
- Follow the approved course of study, satisfactorily completing all courses within the professional component
- Complete all courses with a cumulative 3.00 average, with no course or rotation below a "C"; a "C-" grade in any course or rotation does not meet this standard. For courses that are administered on a pass/fail basis, the student must achieve a "pass" for the course
- Repeat, as approved, and earn a minimum grade of "C" for any required course or rotation in the professional phase for which a grade of "C-" or below was earned

The PA Program requires 101 credits for successful program completion. The program curriculum contains a senior summative, one-credit course that also must be successfully completed in order to meet the program requirements for graduation eligibility.

All courses offered in the curriculum are required, and all of these courses must be successfully completed (as detailed above) to meet this eligibility for graduation.

Advanced Placement Policy

The program will not count coursework completed at a previous institution as fulfilling any of the requirements to graduate. If a student requests special exemption to this policy, it will be denied.

Work & Attendance Policy

The Penn State PA Program will not prohibit students in the program from working. The program believes each student is the correct person to make personal decisions regarding his or her life outside the program. The program is cognizant that students have made a number of personal sacrifices to matriculate into a PA program and are aware of the challenges of succeeding in a PA program. To this end, the program respects the student's personal decision regarding work. The program generally does not have mandatory attendance policy for classes – we would like you to attend class because we feel the teachers will be excellent classroom facilitators and instructors, but we respect different learning styles and the student's decision on how to best assure their success. Each course will provide information regarding attendance policy, though students are required to attend all scheduled tests. Though the program does not prohibit outside employment during the pre-clinical or clinical training, we do not encourage working because of the demands and dedication required for PA training. Students attending clinical rotations will have a minimum of 40 hours a week at the clinical site, which may involve different shifts and weekends – which would make employment very difficult. Students are expected to conform to the schedule that individual preceptor makes, as preceptors will not alter the schedule to accommodate a student's work schedule.

Course Timeline

You'll need 101 credits total to complete our program: 55 credits in the pre-clinical year and 46 credits in the clinical year, as described below.

All courses in the curriculum are graded on a letter grade basis with the exception of the Advanced Cardiac Life Support Course, the Health Care Ethics Course, and the Evidence-Based Medicine Course in the pre-clinical curriculum. These are Pass/Fail courses.

Pre-Clinical Year: Summer

Code	Title	Credits
PAS 701	Applied Human Structure and Function I	2
PAS 702	Applied Human Structure and Function II	2
PAS 704	Clinical Medicine I	5
PAS 707	Pathophysiology I	2
PAS 710	Pharmacology I	2
PAS 713	Pharmacotherapeutics I	1
PAS 716	History and Physical Examination I	2
PAS 721	US Health Care System/Legal Medicine	1
PAS 724	Laboratory Interpretive Methods	1
Total Credits		18

Pre-Clinical Year: Fall

Code	Title	Credits
PAS 703	Applied Human Structure and Function III	2
PAS 705	Clinical Medicine II	5
PAS 708	Pathophysiology II	2
PAS 711	Pharmacology II	2
PAS 714	Pharmacotherapeutics II	1
PAS 717	History and Physical Examination II	2

PAS 719	Evidence-Based Medicine	1
PAS 723	Principles of Behavioral Medicine	1
PAS 725	Physician Assistant Professional Practice	1
PAS 728	EKG Interpretive Methods	1
PAS 730	PA Fundamentals of Health Humanities	1
PAS 731	Radiology Interpretive Methods	1

Total Credits **20**

Pre-Clinical Year: Spring

Code	Title	Credits
PAS 706	Clinical Medicine III	5
PAS 709	Pathophysiology III	2
PAS 712	Pharmacology III	2
PAS 715	Pharmacotherapeutics III	1
PAS 718	History and Physical Examination III	2
PAS 720	Pediatric Studies	1
PAS 722	Principles of Human Sexuality and Reproductive Health	1
PAS 726	Advanced Cardiac Life Support	1
PAS 727	Clinical Skills	1
PAS 729	Principles of Emergency Medicine	1

Total Credits **17**

Clinical Year

During the clinical year, students will take three mandatory primary-care rotations in the area of family practice and internal medicine. Each rotation lasts five weeks.

Mandatory Rotations

Code	Title	Credits
PAS 732	Emergency Medicine Rotation I	5
PAS 734	Family Medicine Rotation I	5
PAS 737	General Surgery Rotation I	5
PAS 739	Inpatient Internal Medicine Rotation I	5
PAS 741	Behavioral Health Rotation I	5
PAS 743	Pediatrics I	5
PAS 745	Reproductive Health I	5
PAS 747/748	Internal Medicine III Rotation	5
One Elective Rotation (See Below)		5
PAS 756	Summative Experience ¹	1
Total Credits		46

¹ Upon completion of the clinical training, students will participate in a one-credit Summative Experience. In addition to taking the PACKRAT examination (which does not impact student placement in the PA Program), students will participate in assessments for knowledge, technical skills, interpretation, and performance of diagnostic evaluations. The Summative Experience must be successfully completed as one of the final requirements for program completion.

Elective Rotations

Choices for the elective rotation are:

Code	Title	Credits
PAS 733	Emergency Medicine II Elective	5
PAS 735	Ambulatory Care Selective	5

PAS 738	General Surgery Rotation II	5
PAS 740	Internal Medicine Rotation II	5
PAS 742	Mental and Behavioral Health Rotation II Elective	5
PAS 744	Pediatrics II Elective	5
PAS 746	Women's Health II Elective	5
PAS 749	Endocrinology I Elective	5
PAS 750	Gastroenterology I Elective	5
PAS 751	Ear, Nose and Throat Elective Rotation	5
PAS 752	Hematology & Oncology Elective Rotation	5
PAS 753	Orthopedics & Sports Medicine I Elective	5
PAS 754	Trauma I Elective	5
PAS 755	Dermatology Elective	5
PAS 760	Cardiothoracic Surgery I Elective	5
PAS 762	Critical Care Medicine I Elective	5

Accreditation

The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) (<http://www.arc-pa.org/>) has granted Accreditation - Continued status to the Penn State College of Medicine Physician Assistant Program sponsored by The Pennsylvania State University.

Accreditation-Continued is an accreditation status granted when a currently accredited program is in compliance with the ARC-PA Standards.

Accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the Standards. The approximate date for the next validation review of the program by ARC-PA will be September 2027. The review date is contingent upon continued compliance with the Accreditation Standards and ARC-PA policy.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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UNIVERSITY COURSE DESCRIPTIONS

The University Course Descriptions section lists all currently active courses at Penn State. Please note that not all courses are offered in any given academic semester. To find class offerings for a specific semester, please view the LionPATH Schedule of Classes (https://public.lionpath.psu.edu/psp/CSPRD/EMPLOYEE/HRMS/c/COMMUNITY_ACCESS.CLASS_SEARCH.GBL?pslnkid=PE_S201801181044562576711220).

Below are definitions for the various components of a course description.

Course-Numbering System

These course descriptions are arranged alphabetically. If any course cannot be located readily, refer to the index. Courses are numbered as follows:

Undergraduate Courses (1 to 399): General courses accepted in fulfillment of requirements for the bachelor's degrees. These courses are described in the Undergraduate Courses section (<https://bulletins.psu.edu/university-course-descriptions/undergraduate/>).

Advanced Undergraduate Courses (400 to 499): Courses open to graduate students and to juniors and seniors and, with the special written permission of the head of the department or the chair of the program sponsoring the course, to qualified students in earlier semesters. These courses are described in the Undergraduate Courses section (<https://bulletins.psu.edu/university-course-descriptions/undergraduate/>).

Graduate Courses (500 to 699; 800 to 899): Courses restricted to students registered in the Graduate School, seniors with an average of at least 3.50 (500- and 800-level only; excludes 600-level), and other students who have been granted permission to enroll by the dean of the Graduate School. These courses are described in the Graduate Courses section (<https://bulletins.psu.edu/university-course-descriptions/graduate/>). Undergraduate students who wish to enroll in 500- or 800-level courses should review the policy and follow the necessary procedures outlined in GCAC-507 Undergraduate Students Taking Graduate Courses (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-500/gcac-507-undergraduate-students-taking-graduate-courses/>).

Medical Courses (700-799): Courses restricted to students registered in the College of Medicine. These courses are described in the College of Medicine Courses section (p. 33).

Law Courses (900-999): Courses restricted to students registered in Penn State Law and Dickinson Law. These courses are described in the Penn State Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/pennstatelaw/>) and Dickinson Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/dickinsonlaw/>).

Common Course Numbers

The following course numbers for which students may register have been set up for common use by major programs, with University Senate approval, to encourage innovation and provide flexibility in designing programs, but in no case may a course be scheduled for 0 credits.

First-Year Seminar 187. Listed under some liberal art-related academic headings, this course has prerequisites of first-semester standing and enrollment in the College of the Liberal Arts.

Research Project Courses 294, 494. 1-12 credits. Supervised student activities on research projects identified on an individual or small-group basis. A specific title may be used in each instance and will be entered on the student's transcript.

Internship 295, 395, 495. 1-18 credits. Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. A specific title may be used in each instance and will be entered on the student's transcript.

Independent Studies 296, 496. 1-18 credits. Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses. A specific title may be used in each instance and will be entered on the student's transcript.

Special Topics 97, 197, 297, 397, 497; 98, 198, 298, 398, 498. 1-9 credits. Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

Foreign Studies 99, 199, 299, 399, 499. 1-12 credits. Courses offered in foreign countries by individual or group instruction. A specific title may be used in each instance and will be entered on the student's transcript. These courses typically carry the International Cultures (IL) attribute.

Graduate Common Courses

Colloquium 590. Continuing seminars that consist of a series of individual lectures by faculty, students, or outside speakers.

Research Topics 594. Supervised student activities on research projects identified on an individual or small-group basis.

Internship 595. Supervised, research-oriented, off-campus, nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

Individual Studies 596. Creative projects, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

Special Topics 597, 598. Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

Foreign Studies 599. Courses offered in foreign countries by individual or group instruction.

Thesis Research 600, 610. In registering for thesis research, a student uses the appropriate number (600, 610) preceded by the abbreviation designating the major field. The numbers 600 (on campus) and 610 (off campus) are available for credit in thesis research in all graduate major programs. The bursar assesses charges for these courses at the current rate of tuition, according to the student's status at the time of registration.

Ph.D. Dissertation 601, 611. The numbers 601 and 611, with associated special fees, are available to Ph.D. degree candidates who have passed the comprehensive examination and met the two-semester residence requirement. They may be used for dissertation preparation work during its later stages, when the academic activity of the candidate consists

partly (611) or solely (601) of work on the completion of research and writing of the dissertation.

SUBJ 601 and SUBJ 611 do not carry academic credit. They are entered on the academic transcript to indicate the registration and the nature of the candidate's academic activity. A candidate registered for SUBJ 601 is classified as a full-time student, while one registered for SUBJ 611 is classified as a part-time student.

The numbers 600, 601, 610, and 611 may not appear in the Schedule of Courses for each semester.

Supervised Experience in College Teaching 602. May be offered by any graduate program in a department that also offers undergraduate courses. A graduate program with no counterpart undergraduate program may offer SUBJ 602 when cooperative arrangements are made with an administrative unit that does not offer graduate degrees but that uses graduate assistants in its teaching. SUBJ 602 may be offered in any semester and is subject to the following restrictions:

1. SUBJ 602 will not be counted in fulfilling any specific credit requirement for an advanced degree.
2. SUBJ 602 will be graded (A, B, C, D, F). The grade will appear on the student's transcript.
3. SUBJ 602 will not be used in calculating grade-point averages.
4. SUBJ 602 shall be offered only in those graduate programs that want to provide opportunity for supervised and graded teaching experience. Enrollment will be restricted to students for whom the major program is prepared to provide such experience.
5. SUBJ 602 will be counted as a part of the student's credit load unless the program specifies otherwise.

Foreign Academic Experience SUBJ 603. Foreign study and/or research approved by the graduate program for students enrolled in a foreign university constituting progress toward the degree.

Colloquium 890. Continuing, professionally oriented seminars that consist of a series of individual lectures by faculty, students, or outside speakers.

Capstone Experience 894. Supervised, professionally oriented student activities that constitute the culminating experience for the program.

Internship 895. Supervised, professionally oriented, off-campus, nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

Individual Studies 896. Creative projects with a professional orientation, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

Special Topics 897, 898. Formal courses given on a topical or special interest subject with a professional orientation that may be offered infrequently; several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

Foreign Studies 899. Courses with a professional orientation offered in foreign countries by individual or group instruction.

Course Attributes and Suffixes

Attributes and attribute values are course designations that are used to define specific characteristics for courses. The search for specific types of courses uses attributes and attributes are the most important notation for a course to satisfy a given requirement.

Suffixes are letters that follow a course number and allow for easier identification of a course's characteristics. Not all attributes and characteristics are captured in available suffixes and suffixes are not the feature used to determine if a course satisfies a requirement. The degree audit and what-if reports use attributes, not suffixes, to determine applicability of a course to a requirement.

Bachelor of Arts

Attributes

- BA: Arts
- BA: Humanities
- BA: Natural Science
- BA: World Cultures
- BA: Quantification
- BA: Social and Behavioral Sci
- World Lang (12th Unit)
- World Language (All)
- Exceeds 12th Unit

Cultural Diversity

Attributes

- International Cultures (IL)
- United States Cultures (US)

Suffixes

- U: United States Cultures and/or International Cultures and Honors
- Y: United States Cultures and/or International Cultures and Writing Across the Curriculum

General Education

Attributes

- GenEd: Writing/Speaking (GWS)
- GenEd: Quantification (GQ)
- GenEd: Arts (GA)
- GenEd: Health Wellness (GHW)
- GenEd: Humanities (GH)
- GenEd: Natural Sciences (GN)
- GenEd: Social & Beh Sci (GS)
- GenEd Integrative: Interdomain

Suffixes

- N: Inter-Domain
- Q: Inter-Domain and Honors

First-Year Engagement Program

Attribute

- First-Year Seminar

Course Subject

- PSU: First-Year Seminar

Suffixes

- S: First-Year Seminar
- T: First-Year Seminar and Honors
- X: First-Year Seminar and Writing Across the Curriculum

Writing Across the Curriculum**Attribute**

- Writing Across the Curriculum

Suffixes

- M: Writing Across the Curriculum and Honors
- W: Writing Across the Curriculum
- X: Writing Across the Curriculum and First-Year Seminar
- Y: Writing Across the Curriculum and United States Cultures and/or International Cultures

Honors Courses**Attribute**

- Honors

Suffixes

- H: Honors
- M: Writing Across the Curriculum and Honors
- Q: Inter-Domain and Honors
- T: First-Year Seminar and Honors
- U: United States Cultures and/or International Cultures and Honors

Undergraduate Course Lists

Below are links to course lists that contain courses that are approved to satisfy either General Education, Bachelor of Arts, or other University Degree Requirements (e.g., Writing Across the Curriculum, First-Year Seminar, etc.). These lists updated periodically throughout the academic year.

General Education Requirements

- Arts Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/arts/>)
- Health and Wellness Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/health-wellness/>)
- Humanities Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/humanities/>)
- Inter-Domain Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/inter-domain/>)
- Natural Sciences Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/natural-sciences/>)
- Quantification Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/quantification/>)
- Social and Behavioral Sciences Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/social-behavioral-sciences/>)
- Writing and Speaking Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/writing-speaking/>)

Bachelor of Arts Degree Requirements

- Arts Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-arts/>)
- Humanities Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-humanities/>)

- Natural Sciences Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-natural-sciences/>)
- Quantification Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-quantification/>)
- Social and Behavioral Sciences Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-social-behavioral-sciences/>)
- World Cultures Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-world-cultures/>)
- World Language (12th Unit) Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-world-language-12th-unit/>)
- World Language (All) Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-world-language-all/>)
- Exceeds 12th Unit of World Language Courses (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-exceeds-12th-unit-world-language/>)

Other University Degree Requirements

- First-Year Seminar (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/first-year-seminar/>)
- International Cultures (IL) (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/international-cultures/>)
- United States Cultures (US) (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/united-states-cultures/>)
- Writing Across the Curriculum (<https://bulletins.psu.edu/undergraduate/general-education/course-lists/writing-across-curriculum/>)

Course Credits

In accordance with Senate Policy 42-23 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-20>), for the typical student, a total of forty-five (45) hours of work planned and arranged by the University faculty is required to gain 1 credit. While the distribution of time varies from course to course, generally one-third of the time is devoted to formal instruction and two-thirds of the time to outside preparation. Course credit by instruction may be achieved by a variety of educational experiences that allow the student to work toward mastery of the course objectives. With the acknowledged goal of educational excellence, more than the minimum established here may be required for mastery of course objectives.

The number of credits for each course is indicated in parentheses and can be earned with classroom, practicum, or laboratory work as designated in LionPATH.

A department may schedule an entire section in an undergraduate course for fewer credits than the maximum authorized. In 400-level courses, a department may schedule an individual student for fewer credits than the maximum authorized. In no case, however, may the course be scheduled for 0 credit, or may the total credits scheduled for any student exceed the maximum number authorized for the course.

Repeatable and Variable Credit Courses

Some courses are designated as repeatable; they may be taken more than once for credit. These courses may be repeated indefinitely unless the department stipulates a maximum number of credits allowed. These courses appear with the maximum number of credits allowed following

the number of credits for the course—for example (1.5 credits/maximum of 3).

Courses may have variable credits, such as (1-3), (2-6), or (3-10). Here, the larger number signifies the total credits that can be accumulated for the course over an indefinite number of semesters, unless otherwise specified. For example, a course listed with (1-6) could be taken six semesters for 1 credit each semester, or two semesters for 3 credits each semester, or once for 6 credits, etc.

In some courses with variable credits, students may be permitted to accumulate more than the larger number shown. Such courses will be listed as, for example, (1-3 per semester, maximum of 12).

Any special departmental limitations are indicated by footnotes.

Prerequisites, Concurrent Courses, Co-requisite Courses, and Recommended Preparation

See also: Senate Policy 34-60 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-60>).

Prerequisites, concurrent courses, and co-requisite courses approximate the necessary specific coursework or general academic knowledge, background, or semester classification required to succeed academically in a given course.

- Prerequisites are courses or other requirements that must be completed prior to the start of a given course.
- Concurrent Courses are similar to prerequisites except that they may be taken prior to, or in the same semester as, the given course.
- Co-requisite Courses are pairs of courses required to be taken together in the same semester.

Registration in a given course is limited to students who have satisfied the stated prerequisite, concurrent, or co-requisite requirements. The course instructor has the right to permit students to take the course without having the stated prerequisite, concurrent, or co-requisite requirements, if the student demonstrates mastery of the material through some other means.

Recommended Preparation relates to preparatory skills or companion courses deemed useful, but not necessary, for successful completion of a course. Recommended preparation has no bearing on registration in a given course.

COLLEGE OF MEDICINE COURSES

A

- Anatomy - MD (ANAT) (p. 33)
- Anesthesiology - MD (ANSTH) (p. 34)

C

- Cardiology - MD (CAR) (p. 35)
- Career Exploration and Synthesis (CES) (p. 35)
- Complementary Alternative Medicine (CAM) (p. 35)
- Consolidation (CONSD) (p. 35)
- Culinary Medicine (CULMD) (p. 36)

D

- Dermatology - MD (DERM) (p. 36)

E

- Emergency Medicine - MD (EMED) (p. 36)
- Endocrinology and Reproductive Medicine (ENREP) (p. 37)

F

- Family and Community Medicine - MD (FCMED) (p. 37)
- Form and Function (FORM) (p. 39)
- Foundations of Patient Centered Care (FPCC) (p. 39)

G

- Gastroenterology - MD (GI) (p. 39)
- Global Health (GH) (p. 39)

H

- Humanities - MD (HMN) (p. 39)

I

- Independent Study (INDEP) (p. 44)

M

- Medical Home Curriculum (MHC) (p. 44)
- Medical Student Research (MSR) (p. 44)
- Medical Triage and Resuscitation (MEDTR) (p. 44)
- Medicine - Interdisciplinary (MDADM) (p. 44)
- Medicine - MD (MED) (p. 45)
- Musculoskeletal System (MSK) (p. 48)

N

- Neural and Behavioral Science (NBS) (p. 48)
- Neuroscience - MD (NEURO) (p. 48)
- Neurosurgery (NSURG) (p. 49)

O

- Obstetrics and Gynecology - MD (OBGYN) (p. 49)
- Ophthalmology (OPHTH) (p. 51)
- Orthopaedics (ORTHO) (p. 52)
- Otolaryngology (OTO) (p. 52)

P

- Pathology - MD (PATH) (p. 53)
- Patients and Sciences (PS) (p. 53)
- Pediatrics - MD (PED) (p. 54)
- Physical Medicine and Rehabilitation (PMR) (p. 57)
- Physician Assistant Studies (PAS) (p. 58)
- Primary Care Medicine (PCMED) (p. 75)
- Problem-Based Learning Facilitation - MD (PBL) (p. 76)
- Psychiatry - MD (PSCHT) (p. 76)

R

- Radiology (RAD) (p. 77)
- Renal Medicine - MD (REN) (p. 78)
- Respiratory Medicine (RESP) (p. 78)

S

- Sciences Health Systems (SHS) (p. 79)
- Scientific Principles of Medicine (SPM) (p. 80)
- Students as Educators (SAE) (p. 80)
- Surgery - MD (SURG) (p. 80)

T

- Transition (TRANS) (p. 82)
- Transition Clinical Medicine (TCM) (p. 82)
- Translating Health Systems Science (THS) (p. 82)

U

- Underserved Medicine and Domestic Health (UMDH) (p. 83)

Anatomy - MD (ANAT)

ANAT 743: Musculoskeletal Advanced Anatomy

3 Credits

This course provides exposure to the relevancy of anatomy to the clinical setting and specifically covers topics related to musculoskeletal clinical presentations.

Prerequisite: successful completion of the 3rd year of medical school

ANAT 797A: Advanced Dissection

1 Credits

Special topics course.

Anesthesiology - MD (ANSTH)

ANSTH 700: Introduction to Anesthesiology and Perioperative Medicine

2.5 Credits/Maximum of 2.5

This 2 week elective is designed as an introduction to anesthesiology and perioperative medicine relevant to all medical specialties, and will be offered throughout Phases II-IV. Students will learn basic concepts of anesthesiology and have the opportunity to participate in patient care with the anesthesia team in the operating room environment and hospital. Daily clinical assignments with the anesthesia team will provide continuous direct supervision by anesthesiology faculty, residents, and nurse anesthetists. During the elective, students will apply foundational knowledge of physiology, pharmacology, and anatomy to patient care and learn the anesthetic implications of each. Students will also learn and apply knowledge of anesthesia concepts to preoperative evaluation, and how surgical indications and patient comorbidities influence anesthetic planning and delivery. Learning experiences will include observation, participation, and interactive discussions with the anesthesia team during clinical patient care. Students will attend the resident lecture series and spend a day in both the Chronic Pain Clinic and the Preoperative Evaluation Clinic. The simulation lab may be used to facilitate learning of proper monitor placement, airway management, and other skills. When appropriate and at the discretion of the faculty anesthesiologist, students will have the opportunity to perform basic monitoring placement and procedures under direct supervision during patient care. Students will be expected to complete required reading assignments and discussion questions based upon the learning objectives. Preparation for daily assignments will include knowledge of pertinent patient information from the electronic medical record and discussion of the anticipated anesthetic plan with the anesthesia team on the day prior to the planned surgical procedure. Clinical assignments will be determined by the course director and a core group of anesthesiology faculty, and will be released in congruency with the operating room schedule on the day prior to surgery. Students will be expected to report in the morning to assist with operating room setup, and will remain with the assigned anesthesia team until completion of the day. Attendance at daily clinical assignments will be mandatory and excusals will be at the discretion of the course director. There will be no weekend or night call requirements.

Prerequisites: Successful completion of Phase I

ANSTH 701: Advanced Anesthesiology and Perioperative Medicine

2.5 Credits/Maximum of 2.5

This 2 week elective will build upon concepts learned during the prerequisite 2 week ANSTH 700 elective, and is designed for students interested in further knowledge and experience in clinical anesthesiology. It will be offered throughout Phases II-IV and is recommended for students interested in career exploration within the specialty of anesthesiology. Students will apply prior knowledge and newly learned concepts in the delivery of anesthesia during patient care. Upon completion of the elective, students will be expected to choose an appropriate anesthetic and pain management plan based upon patient conditions and surgical indications by applying advanced concepts of physiology, pharmacology, and anatomy. Perioperative patient care will occur largely within the operating room environment and perioperative setting. Daily clinical assignments with the anesthesia team will provide continuous direct supervision by anesthesiology faculty, residents, and nurse anesthetists. Learning experiences will include observation,

participation, and interactive discussions with the anesthesia team during clinical patient care. Students will also have the opportunity to attend the resident lectures offered during the course. Case based learning discussion sessions and the simulation lab may be used to provide learning opportunities in addition to the operating room. At the discretion of the faculty anesthesiologist, students will have the opportunity to perform basic monitor placement and procedures under direct supervision during patient care. Students will be expected to complete required reading assignments and discussion questions based upon the learning objectives. Preparation for daily assignments will include knowledge of pertinent patient information from the electronic medical record and discussion of the anticipated anesthesia plan with the anesthesia team on the day prior to the planned surgical procedure. Clinical assignments will be determined by the course director and a core group of anesthesiology faculty, and will be released in congruency with the operating room schedule on the day prior to surgery. Students will be report in the morning to assist with operating room setup and will remain with the assigned anesthesia team until completion of the day. Attendance at daily clinical assignments will be mandatory and excusals will be at the discretion of the course director. There will be no weekend or night call requirements.

Prerequisites: ANSTH 700

ANSTH 740: Anesthesia Acting Internship

5 Credits/Maximum of 5

The acting internship in anesthesia is designed to expand on the experiences obtained in courses ANSTH 700 and 770.

Prerequisite: ANSTH700 , ANSTH770 , and third-year core clerkships

ANSTH 770: Subspecialty and Complex Anesthesiology

5 Credits/Maximum of 40

This 4 week elective offered in Phase III/IV will build upon the concepts learned during the prerequisite 2 week electives, and is designed for students interested in preparation for a career in anesthesiology. The elective will be designed for students to function at the level expected of a resident intern on the anesthesia team. Students will have experiences in complex subspecialty cases including; pediatrics, obstetrics, cardiothoracic, vascular, acute pain management, and neurosurgery. Students will learn advanced applications of physiology, pharmacology, and anatomy in the care of patients with complex disease pathologies for subspecialty surgery. Perioperative patient care will occur largely within the operating room setting, including the Children's Hospital and Labor & Delivery Unit. Daily clinical assignments with the anesthesia team will provide continuous direct supervision by faculty, residents, and nurse anesthetists. Learning experiences will include observation, participation, and interactive discussions with the anesthesia team during clinical patient care. Students will attend the resident lecture series offered during the selective period. Daily performance evaluations by the anesthesia team will serve as formative and summative feedback. Case based learning discussions and the simulation lab may be used to provide additional learning opportunities. At the discretion of the faculty anesthesiologist, students will have the opportunity to perform monitor placement and basic procedures under direct supervision during patient care. Students will be expected to complete required reading assignments and discussion questions based upon the learning objectives. Preparation for daily assignments will include knowledge of pertinent patient information from the electronic medical record and discussion of the anticipated anesthetic plan with the anesthesia team

prior to the surgical procedure. Clinical assignments will be determined by the course director and a core group of anesthesiology faculty, and will be released in congruency with the operating room schedule on the day prior to surgery. Students will report in the morning to assist with operating room setup and will remain with the assigned anesthesia team until completion of the day. Attendance at daily clinical assignments will be mandatory and excusals will be at the discretion of the course director. Students will be expected to participate in one weekend and three overnight calls during the 4 week period.

Prerequisite: ANSTH 700 and ANSTH 701

ANSTH 772: Pain Management

5 Credits/Maximum of 40

Includes evaluation, diagnosis, and treatment of complex chronic pain problems in an outpatient model. A hands-on approach will be emphasized.

Prerequisite: completion of first three years of medical curriculum

ANSTH 796: Anesthesia Individual Studies

5 Credits/Maximum of 40

Special studies program, usually involving investigative work, all hours and assignments by arrangement with a member of the anesthesia staff-faculty.

Prerequisite: successful completion of third year core clerkships. Students must contact course director for pre-approval prior to registering for this course.

ANSTH 797: Anesthesia Special Topics

5 Credits/Maximum of 40

Anesthesia Special Topics

Prerequisite: successful completion of 3rd year core clerkships

Cardiology - MD (CAR)

CAR 711: Cardiovascular Medicine

5-6 Credits/Maximum of 6

Course provides exposure to basic concepts in histology/pathology, biochemistry, physiology, pharmacology, and clinical medicine related to cardiovascular medicine.

Prerequisite: must have completed all preceding course work in the first year of medical school

Career Exploration and Synthesis (CES)

CES 730: Career Exploration and Synthesis

2.5 Credits/Maximum of 7.5

Given that students in Phase 2 are required to have 3 separate two-week clinical exposures, CES provides opportunities in addition to existing formal two-week electives. To that end, Career Exploration and Synthesis is a 2 week clinical experience in a medical or surgical discipline of

the student's choice at the end of each block in phase II. This time is intended to permit exploration of various career options, extension of clinical experiences and synthesis of material learned throughout the block, and allow for individualization of learning in the clerkships.

Prerequisite: Completion of phase I

CES 731: Career Exploration and Synthesis-Longitudinal Integrated Clerkship (CES-LIC)

5-7.5 Credits/Maximum of 7.5

All Phase II - Clerkship students are required to take the equivalent of 7.5 credits of Career Exploration and Synthesis electives, so the CES-LIC provides the opportunity to take all or a portion of these electives in a longitudinal rather than a block format. For students participating in an LIC, Career Exploration and Synthesis-LIC is a longitudinal clinical experience in a clinical discipline of the student's choice that occurs concurrently with the other LIC courses. This time is intended to permit exploration of various career options, extension of clinical experiences and synthesis of material learned throughout the LIC, and allow for individualization of learning in the clerkships.

Prerequisite: Completion of Phase I, Corequisites: Core Clerkships

Complementary Alternative Medicine (CAM)

CAM 742: Herbal and Natural Products as Therapeutics

5 Credits

This course will assess safety, efficacy, and applicability of natural products as therapeutic options for management of common medical conditions.

Prerequisite: successful completion of all required their year medical school courses or approval by course director

Consolidation (CONSD)

CONSD 722: Phase I Consolidation Course

2 Credits/Maximum of 2

At the close of the Phase I, pre-clerkship curriculum, prior to entry into clerkships and taking the high stakes United States Medical Licensure Step I Exam, this course will offer resources to students as they engage in self-directed learning to consolidate and reactivate knowledge learned over the prior fourteen months of medical school. Concurrent with the dedicated board study period, this course will be taught by expert faculty using active learning methods in large group sessions in which lecture is minimized and student misconceptions are addressed. Students are invited to engage with as many or as few of the teaching sessions as they feel will be helpful to meet their personal learning needs. Test-taking success strategies and psychological preparation will comprise a significant proportion of the course, with support from learning specialists and near peer students who have successfully passed through this phase of their education. To this end, all students will be required to take full, timed NBME practice exams on specific dates during the course, with instruction in how to analyze their individual results to identify learning needs and formulate an individualized study plan. Course topics are pulled from the domains of microbiology, pathology, physiology, pharmacology, anatomy, biostatistics and epidemiology, and

clinical ethics, with specific topics identified using evidence such as historic Phase I summative exam results, AAMC graduation questionnaire data, focus groups of students who have successfully taken the exam, and consultations with directors of Phase I courses and Phase II clerkships.

Prerequisite: Prior enrollment in all Phase I courses

Culinary Medicine (CULMD)

CULMD 740: Clinical Elective in Culinary Medicine

2.5 Credits

The Culinary Medicine course will teach fundamental dietary and nutrition knowledge with basic culinary skills through inter-professional hands-on community cooking classes. Lessons will be keyed to both the basic science curriculum while linking concepts learned to the practical clinical skills needed for the patient physician discussion about the importance of dietary and lifestyle change. Most time in the classroom is spent in an interactive environment in the kitchen. Since this elective is integrated with community members, students will get a true opportunity to develop relationships with community members and practice nutrition and counseling skills. Students will be guided to lead small group discussions covering the daily culinary medicine topics with community members during each class

Prerequisite: Successful admission to COM

Dermatology - MD (DERM)

DERM 732: Dermatology Elective

5 Credits/Maximum of 5

Designed to provide students with an extensive, in-depth exposure to clinical dermatology; involved in the evaluation and management of patients in dermatology clinics.

Prerequisite: Third Year Core Clerkships

DERM 740: Dermatology/Pathology Elective

5 Credits/Maximum of 5

Intended for students pursuing a career in dermatology or pathology; involves the study of the pathology of cutaneous disorders. The elective complements what is learned in dermatology and pathology rotations.

Prerequisite: successful completion of 3rd year core clerkships. Students must contact course director to receive prior approval before registering for this course.

DERM 740A: Clinical Elective in Dermatology

2.5 Credits/Maximum of 2.5

The Clinical Dermatology elective is a TWO-week course that is designed to cover the skin conditions that are most germane to any general practitioner. The course will provide an introduction to several common diseases that affect the skin and their diagnosis, pathology, and treatment. This course is focused on the most common and most important diseases and therapies from a public health standpoint. This course is not suggested for students pursuing a career in dermatology (the 4-week elective [DERM 732] is suggested for these students). Course material will be presented in the form of workplace teaching in the clinic,

microscopic teaching in the dermatopathology practice site, and readings from textbooks and online learning modules. Central themes of the course are visual recognition of the cutaneous findings and the ability to accurately describe these findings. Patient care hinges upon first visualizing the abnormality after which the descriptive terminology can facilitate the generation of a differential diagnosis.

Prerequisite: Successful completion of Phase I

DERM 796: Dermatology Individual Studies

5 Credits/Maximum of 5

This course provides an opportunity for senior medical students to pursue individual dermatology research projects with a supervising faculty dermatologist.

Prerequisite: Restricted to students enrolled in The Pennsylvania State University College of Medicine. Students must have completed the dermatology elective (DERM 732).

DERM 796A: Dermatology Individual Studies for 3rd Year Students

2.5 Credits

Dermatology Individual Studies for 3rd Year Students.

DERM 797: Dermatology Special Topics

5 Credits/Maximum of 5

Dermatology Special Topics.

Prerequisite: successful completion of 3rd year core clerkships

Emergency Medicine - MD (EMED)

EMED 740: Emergency Medicine Ultrasound

5 Credits/Maximum of 5

This course provides hands-on exposure to bedside ultrasound image acquisition and interpretation in the Emergency Department.

Prerequisite: successful completion of Year III and must have previously taken an Emergency Medicine elective or AI.

EMED 745: Pediatric Emergency Medicine Elective

5 Credits/Maximum of 5

This course is designed to provide a Pediatric Emergency Medicine Experience for students interested in the acute care of children and is designed to expose the students to the broad range of conditions that present to a Pediatric Emergency Department.

Prerequisite: third year clerkships in Pediatrics and at least two other core third year clerkships

EMED 752: Emergency Medicine Acting Internship

6 Credits/Maximum of 6

This acting internship (AI) overall seeks to build on the foundations of clinical care laid in the preclinical and clerkship curricula. The acting intern will function with direct and indirect supervision and will act as the primary caregiver to a number of patients appropriate for their level of training. They will gather focused patient information during the history

and physical exam in a time effective manner and use critical thinking and advanced knowledge to guide judgement and medical decision making in a semi-autonomous fashion. Students will take primary responsibility and be accountable for patient care, management, follow up, and reassessment throughout all phases of clinical care from arrival to discharge. Students will perform order entry and documentation on their patients to a sufficient degree to become independently competent in these skills. The AI student will be expected to exemplify professional behavior, communication, and teamwork with patients and families, inter-professional care team members and interdisciplinary consultants at the level of a resident intern. Prioritization and timely coordination of patient care activities will be the responsibility of the AI student, including smooth and effective transfers of care, discharge planning, and necessary follow up. The AI student will also display appropriate team leadership during teaching activities when applicable. During this specific AI Course, students will be immersed within the specialty of Emergency Medicine and will use advanced medical knowledge and practice during direct patient care in a collaborative and inter-professional manner.

Prerequisite: successful completion of all third year core clerkships

EMED 753: Preparation for Internship in Emergency Medicine Elective

2 Credits

This 2-week 4th year elective is designed specifically for students transitioning into their Emergency Medicine internship. In order to better prepare our students here at Penn State COM to meet the ACGME level-1 Emergency Medicine milestones, we will introduce and/or refresh the following sub competencies important to new emergency medicine residents: Recognize common emergency presentations and form a decision making framework, demonstrate basic suturing and splinting techniques, the basics of reading radiographs and point of care ultrasound, appraisal of the literature, and advanced communication skills, such as hand-offs, consults, and triage. The course content will be delivered in three forms: formal didactic lectures, case-based learning, and simulation exercises for hands-on experience. Simulation exercises include assessment and management of shock, airway management, common pediatric emergencies, point of care ultrasonography, and a skills workshop involving suturing and splinting. Students will complete a pre and post course assessment survey to gauge their desired/needed learning experiences and their feedback on the course.

EMED 754: Toxicology Elective

5 Credits

Toxicology admissions and consults; weekly two-hour conferences; poison center sign-out rounds; exposure to the most common toxicologic poisonings; research opportunities.

Prerequisite: completion of third year of medical school

EMED 756: Emergency Medicine Elective for Third Year Students

2.5 Credits

Introduction for the 3rd year medical student to various aspects of Emergency Medicine.

Prerequisite: completion of the second year of medical school

EMED 796: Emergency Medicine Independent Studies

5 Credits/Maximum of 5

Emergency Medicine Independent Studies

Prerequisite: Successful completion of all 3rd year clerkships

EMED 797: Emergency Medicine Special Topics

5 Credits/Maximum of 5

Emergency Medicine Special Topics

Prerequisite: Successful completion of all third year clerkships

Endocrinology and Reproductive Medicine (ENREP)

ENREP 721: Endocrinology and Reproductive Medicine

7 Credits/Maximum of 7

This is a required course designed to introduce medical students to the essential fundamental principles underlying endocrinology and reproduction. The complex nature of endocrine and reproductive feedback mechanisms requires students to understand and apply critical thinking skills so that they will be able to integrate fundamental scientific knowledge with clinical reasoning skills, preparing them for effective learning in the clinical phase of their education. These goals include: - Compare and contrast the regulation of different target organs by the pituitary gland and hypothalamus. - Discover the role of the thyroid hormones on the metabolic process. - Describe the role of diabetes and obesity in human health. - Analyze the normal and abnormal function of the adrenal glands and how these interact with other organ systems. - Describe the steps of development from embryo to adulthood - Explain the process of pregnancy and recognize possible abnormalities during this period. - Discuss the issues related to men's and women's health and predict the differential diagnosis according to specific risk factors. This course is presented annually during Phase I (Foundational Medical Sciences - the first 18 months of medical school) of the medical school curriculum and is a required course for all medical students. Assessment methods are discussed in paragraph C-2.

Family and Community Medicine - MD (FCMED)

FCMED 700: Family & Community Medicine Clerkship

9 Credits/Maximum of 9

The goal of this clerkship is to help students integrate basic science and clinical knowledge in the context of patient care with supervising family physicians and their care teams. Family Medicine is a full-spectrum specialty. The emphasis of the clerkship is on breadth of knowledge as much as depth of knowledge. The clerkship also presents an excellent opportunity to hone communication and exam skills. Continuity of care, preventive medicine, evidence-based decision making, and systems-based thinking are all key to successful Family Medicine practice. The FCM clerkship will be a six-week clinical immersion at one of the Penn State medical group outpatient offices or with one of our affiliate sites. We strive to provide students with continuity with outpatient preceptors, which may include advanced-practice providers, residents, and/or

attendings depending on your site placement. This will allow students to establish working relationships with preceptors, obtain valuable feedback for continued professional growth, and maintain continuity with patients.

Prerequisite: Successful completion of Phase I coursework & pass Step 1

FCMED 722: Family Medicine Acting Internship

6 Credits/Maximum of 6

Core Acting Internship rotations at Penn State emphasize students' active role on the team to ensure readiness for residency. In their role as acting interns, students on Core AI rotations will develop increasing proficiency and independence in developing plans of care, entering orders, preparing and performing patient handoffs, appropriately evaluating and responding to changes in patients' clinical conditions, and applying evidence-based care to patient management. The AI student should function with direct and indirect supervision to gather focused patient information during the history and physical exam in a time effective manner and use critical thinking and advanced knowledge to guide judgement and medical decision making in a semi-autonomous fashion. Students will take primary responsibility and be accountable for patient care, management, follow up, and reassessment throughout all phases of clinical care to also include electronic documentation. The AI student will be expected to exemplify professional behavior, communication, and teamwork with patients and families, interprofessional care team members, and interdisciplinary consultants at the level of a resident intern. This includes a proactive approach to teamwork, warm handoff and patient care follow up. The AI student will also display appropriate team leadership and teaching activities when applicable. This may include involvement in residency didactic sessions and coordination of care activities utilizing and understanding comprehensive care. During this specific AI Course, students will be immersed within the specialty of Family and Community Medicine, across many different patient populations, and will use advanced medical knowledge and practice during direct patient care in a collaborative and interprofessional manner to also include immersion and understanding of patients with different barriers to health care and social determinants of health.

Prerequisite: successful completion of all third-year clerkships

FCMED 730: Advanced Communications Elective - Paired Observation & Video Editing (POVE)

5 Credits

Provides the opportunity for students working together to advance their communication skills in clinical settings.

Prerequisite: successful completion of third year required clerkships

FCMED 731: Family Medicine Inpatient Elective

2.5 Credits/Maximum of 2.5

Faculty in Family and Community Medicine (FCM) have developed a hands-on in-depth immersion in hospital-based medicine embedded in the FCM Inpatient Medical Service at the Penn State Milton S. Hershey Medical Center and College of Medicine. This 2 week experience prepares students to work in teams to improve patient outcomes by addressing complex medical issues, while gaining a greater understanding of the continuity that Family Medicine clinicians provide to their patients. Students will be able to expand their medical knowledge through both hands-on care, didactic lectures and interactive discussions, and they

will be able to apply and enhance their critical thinking skills. Most didactic lessons will be available online for further review and to allow asynchronous learning. Students will work with the FCM Inpatient Team and develop transitional care plans to treat acute and chronic medical problems. Coordination of care with the Discharge Planning Team will be emphasized to ensure that patients are adequately prepared for hospital discharge. Factors that affect patient health post-discharge such as Social Determinants of Health and Transitional Care Management will also be discussed, and students may have the opportunity to follow up with their patients in the outpatient clinic or post-discharge settings such as a skilled nursing facility. Students will learn more about the key competencies espoused by the Interprofessional Education Collaborative (IPEC), and how knowledge and application of these competencies can enhance the patient experience and improve overall outcomes of patient care. The real-world interaction of this process helps students become part of a team that focuses on individual patient-centric care and patient-specific needs and the individual barriers that may prevent such ideal care. At the completion of this course students should have a better clinical understanding of the health systems science principles as they apply in the inpatient setting, and they will have a better command of the knowledge that is necessary to shepherd these patients safely through the hospital admission.

FCMED 743: Family Medicine Residency Preparatory Course

2.5 Credits/Maximum of 2.5

This course is designed to prepare students who are planning on entering into a family medicine residency for the transition to intern year. It is designed to build specific skill sets to facilitate that transition with the goal of bringing many of the topics introduced throughout medical school into a clinical context relevant to family medicine. Topics covered throughout the course include: management of acute inpatient and obstetric scenarios, core intern skills such as daily inpatient and outpatient care pearls, responding to pages, and procedural training. There will also be panel discussions on future career paths from a family medicine residency. The design of the course includes multiple educational venues. There will be several sessions conducted in the simulation center with a focus on case-based acute medical and obstetric scenarios. Other sessions will be done in small-group didactic settings in which interactive participation is encouraged. Several panel discussions as noted above will also be included. Upon completion of the course, participants will be able to perform initial steps in the evaluation and management of common acute medical and obstetrical scenarios. Additionally, they will have improved confidence in a variety of key skills for daily inpatient and outpatient care of a broad-spectrum of patients. Pre- and post-surveys will be performed to assess participants' confidence in these areas. Direct observation of student performance will take place in simulated case scenarios and paging simulations. Grading will be Pass-Fail based on active participation, attendance, and evaluations of simulated paging and case scenarios.

Prerequisite: Successful completion of phases I and II. Students should have applied to/matched into a family medicine residency.

FCMED 796: Family & Community Medicine Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: successful completion of 3rd year core clerkships

FCMED 796A: Family & Community Medicine Individual Studies for 3rd Year

2.5 Credits

Family & Community Medicine Individual Studies for 3rd Year.

FCMED 797: Family & Community Medicine Special Topics

5 Credits/Maximum of 5

Advanced training in interpersonal communication skills, community health, rural health, ambulatory care analysis, clinical nutrition, geriatrics, and other topics.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

Form and Function (FORM)

FORM 712: Form and Function

5 Credits/Maximum of 5

The Musculoskeletal System Dermatology Rheumatology (MSDR) course aims to give learners an organized educational experience that is broad yet practical, and integrates orthopedic, rheumatologic, and dermatologic diseases. The pathogenesis, recognition of clinical findings, diagnostic procedures and introduction to therapies pertinent to general medical practice will be prominent. Material will complement students' work on clinical skills in Foundations of Patient Centered Care (FPCC) and the concurrent Anatomy course. This course is presented annually during Phase I (Foundational Medical Sciences - the first phase of medical school) of the medical school curriculum and is a required course for all medical students. Assessment methods are discussed in Evaluation Methods section.

CONCURRENT: HMN 713, SHS 711, FPCC 713 Anatomy

Foundations of Patient Centered Care (FPCC)

FPCC 711: Foundations of Patient Centered Care

2 Credits/Maximum of 2

First semester of a four-part course to learn and apply clinical interviewing and examination skills at the novice level integrated with healthcare practice topics.

FPCC 712: Foundations of Patient Centered Care

2 Credits/Maximum of 2

Second semester of a four-part course to learn and apply clinical interviewing and examination skills at the advanced beginner level integrated with healthcare practice topics.

FPCC 721: Foundations of Patient Centered Care

3 Credits/Maximum of 3

Third semester of a four-part course to learn and apply clinical interviewing and examination skills at the competent level integrated with healthcare practice topics.

FPCC 724: Foundations of Patient Centered Care - IV

2 Credits

Fourth semester of a four-part course to learn and apply clinical interviewing and examination skills at the proficient level integrated with healthcare practice topics.

Gastroenterology - MD (GI)

GI 712: Gastrointestinal Pathophysiology and Nutrition

5 Credits/Maximum of 5

Course provides exposure to foundational sciences and clinical medicine relating to the gastrointestinal tract, pancreas, biliary system, and liver, and nutrition.

Prerequisite: completion of all preceding course work

Global Health (GH)

GH 717: Global Health Scholars First Year Elective

1-5 Credits

This course provides exposure to basic concepts of global health, tailored to first year medical students with a focus on community health assessment and engagement.

Prerequisite: Acceptance into the Global health Scholars Program through a competitive application process. The online application process is made available to all first year medical students in the Fall. All applications are kept confidential

GH 727: Global Health Scholars Second Year Elective

1-5 Credits

This course provides exposure to basic concepts of global health, designed for the second year medical students, with a focus on the global burden of disease and community-oriented participatory research. Students will utilize the knowledge and skills gained during this year, guided by faculty, to develop a health improvement intervention for the host site (e.g. San Pablo, Ecuador). This elective does not meet graduation requirements. It is offered as part of the Global Health Scholars Program.

Prerequisite: successful completion of GH 717

GH 747: Global Health Scholars Fourth Year Elective

4 Credits

Global Health Scholars 4th year elective.

Prerequisite: successful completion of GH 717 and GH 727

Humanities - MD (HMN)

HMN 700: Humanities Seminar Selective

2 Credits/Maximum of 2

Humanities Seminars are capstone courses for the Health Humanities Pillar in medical education, required during Phase 3. These courses are grounded in humanities, social science, or arts-based content and/or

methods. Humanities Seminars integrate humanities scholarship with the practice of medicine to provide a context for students to deepen and extend their knowledge, reflect on professional identity development, engage in critical thinking, and integrate cognitive and affective responses to course materials. While all Humanities Seminars will be offered within this broad framework, specific topics and methods will vary depending on the expertise of the instructor. All courses embrace a common set of learning objectives and courses may include additional learning objectives as deemed appropriate by course instructors.

HMN 711: Foundations of Health Humanities

5 Credits/Maximum of 5

As the introductory course in the Humanities Phase 1 sequence, we will devote class time considering issues of pressing social interest, including structural inequities like racism and discrimination in medicine, justice, and unconscious bias. The course also introduces primary skills in narrative medicine, clinical ethics, and anthropology, all of which promote clinical practices that are inclusive, culturally sensitive, and self-aware. A primary conceptual framework that guides the course is the social construction of reality. Our worlds are both biologically and socially constructed. Biological construction addresses how our bodies work as organisms, why we are healthy or sick, and how to treat illness so that we can become well. Social construction addresses the social worlds, values, stories and structures that we create to sustain ourselves as individuals, families, and communities. The social construction framework explains the way our minds perceive reality and shape it. If we understand how our realities are constructed, we can find ways to change those realities that are harmful-either by creating biochemical treatments to fight disease or to identify and then alter behaviors that lead to discriminatory practices. Many disciplinary approaches in the social sciences and humanities illuminate the social construction of reality. This course provides students with conceptual frameworks to refer to during their entire medical school experience.

Concurrent: Organ systems, clinical skills, and systems courses in Phase I of the MD program.

HMN 716: Observation & Interpretation

1 Credits/Maximum of 1

Practicing good clinical medicine requires both keen observational skills and careful deductive reasoning. Identification of key pieces of data, recognition of patterns in the data gathered, and interpretation and reinterpretation of both data and patterns, are key components of medical decision-making.* The purpose of this course is to emphasize the power and importance of observation and interpretation in the practice of medicine. As students prepare to work with patients, O&I provides the opportunity to begin developing competence in these areas without the fear of misdiagnosing or harming a patient. Here, learners will be challenged to refine their observational and analytical skills using works of art-mostly visual art and photography, but also brief writings-and to communicate their impressions and findings to others, a process similar to differential diagnosis. Unlike the goal of arriving at one "correct" answer in medicine, however, this course encourages multiple answers and interpretations. By exploring what various people experience in a piece of art, we come to understand that our own perspectives are limited. Not infrequently, listening to others' observations enables us to comprehend more completely and therefore interpret more accurately. Ideally, experiencing the arts also leads to empathy for others, another fundamental goal of practicing medicine.

HMN 717: Humanities in Context (HIC)

2 Credits/Maximum of 2

The goal of HIC is to support the cultivation of humanistic sensitivity, which involves: - Noticing that there is a humanities issue - Adapting strategy and behavior to the humanities issue - Reflecting on the effectiveness of the strategy and behavior - Reorienting and reflecting to develop new approaches for the future Humanistic sensitivity involves looking outward toward professional practice and inward at one's own professional development. HIC is intended to be tightly connected to the care of patients; a practical, more so than theoretical, course. Toward this end, the concurrent organ system PBL cases will serve as the springboard for HIC learning most weeks. In this way, we will approach course topics through a single rich narrative description, and then zoom out to widen our view. The frame of the course is to apply humanistic sensitivity strategies to understand the experiences of the doctor and the patient within the societal context of medicine. Key themes for exploring these experiences will include: - Professional identity formation and wellbeing - Patient as person - Ethics - Critical Consciousness At the end of this course, we hope that you will be able to apply humanistic sensitivity in Clerkships and other educational settings to notice how a humanities issue is impacting providers, patients, or the clinical context, and then have some tools to begin to respond to it.

HMN 720: Developing your Interpersonal Skill Set Using Art and the Study of Stigmatized Populations

2.5 Credits/Maximum of 2.5

As physicians we treat patients who come from highly diverse and often unfamiliar backgrounds. We strive to be sensitive to each patient's needs and humane in our interactions. Using art and a selection of readings, this course seeks to hone the student's critical skills of observation - incorporating visual cues to help us to observe, hear and therefore understand our patients better. Class readings explore the integral role of cultural background and the many unique challenges that stigmatized populations often face. The readings are discussed and the student is encouraged to self reflect in order to recognize bias, advance their cultural humility and embrace an open approach to learning about others who might be different than ourselves. The readings may be modified to respond to each class' diverse interests. To introduce art analysis as a means of honing observational skills, the class takes a field trip to The Barnes Foundation in Philadelphia (virtual in 2021). Dr. Barnes' goal was to highlight the unique interrelationships of varied artists and a range of art forms. Dr. Barnes' unique perspective has been credited in part to his study of medicine - as the evaluation of a patient often requires us to weave together disparate elements and details to make a correct diagnosis.

HMN 723: Communications

3 Credits/Maximum of 3

This 12 week course during the second year of Phase I focuses on the application of verbal, nonverbal, and written communication skills in the context of patient care, team dynamics, and leadership. Communication builds on theoretical framework for communication skills presented in earlier humanities courses to help students construct a practical toolbox of skills as well as the opportunity for the application and rehearsal of skills in realistic patient-care related scenarios. There is heavy emphasis on selfreflection and self-assessment in order to provide students with the skills necessary to improve their communication skills lifelong. During the course, students will progress through four modules: 1) Self,

which focuses on self-assessment of internal bias, assumptions, and values, and how these individual characteristics impact the way we communicate as providers and team members, 2) Dyads, which is the most intensive portion of the course, and focuses on specific skills such as techniques for establishing rapport, nonverbal communication, silence, listening, asking/questions, and framing statements, 3) Teams, which expands the techniques and insights learned during modules 1 and 2 for application in scenarios involving interprofessional teams and families, and 4) Systems, which focuses on the role of good communication within a healthcare system, including a session on communication skills of effective leaders, and a case study that explores the impact of a patient-related communication breakdown on a health care institution. Each session may involve pre-reading, and will begin with a short large-group interactive session related to the day's topic. The majority of each session will be devoted to small group workshops facilitated by trained faculty during which students can apply skills to a standardized patient care scenario. Evaluation methods are detailed below. The course will be offered once annually during Phase I of the Undergraduate Medical education Curriculum.

CONCURRENT: Head/Neck Anatomy FPCC 723, NBS 723, SHS 721

HMN 731: Humanities Across Clerkships

1 Credits

Phase II Clerkships can present emotional, physical, and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing, and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.

HMN 741: Education for Physicians on End of Life Care (EPEC)

2.5 Credits

This course introduces the essential clinical competencies required to provide quality end-of-life care.

Prerequisite: This humanities elective course requires the student to have successfully completed Medical Humanities (Year I) and Ethics and Professionalism (Year II), as well as successful completion of all required third-year medical

HMN 742: Putting It Into Words: A Right-Brain Retrospective of Formative Moments in Medical School (PIW)

2.5 Credits

This creative writing workshop requires MS IVs to convey their reflections as medical students in a variety of genres which, collectively, result in a portfolio and publication.

Prerequisite: good standing as MS IVs

HMN 743: Graphic Medicine: Comics and Medical Narratives

2.5 Credits

In this course, students will explore the use of graphic storytelling (or Comics) as a medium for communicating medical narratives.

HMN 744: Humanities: Patients as Teachers, Students as Filmmakers
Video Project: TheVideo Slam

2.5 Credits

This course teaches medical students about the full impact of illness and serious procedures on patients and their families.

Prerequisite: successful completion of third year of medical school

HMN 745: Medicine and Ethics Under Pressure

2.5 Credits

This course explores situational and systemic challenges to ethical behavior in biomedical research and the practice of medicine.

HMN 746: CAM and Integrative Holistic Medicine

2.5 Credits

This course presents current topics in Integrative Holistic Medicine and discusses the transition from Complementary and Alternative Medicine.

Prerequisite: successful completion of all third year core clerkships

HMN 747: The Medical Detective

2.5 Credits/Maximum of 2.5

Practicing good clinical medicine requires both keen observational skills and careful deductive reasoning - precisely the skills essential for any good detective. Identification of key pieces of data, recognition of patterns in the data gathered, and interpretation and reinterpretation of both data and pattern, are key components of medical decision-making. The purpose of this course is to emphasize the power of observation and interpretation in the practice of medicine. Using works from the whole spectrum of the fine arts (painting, music, writing, photography, dance, drama) students will challenge their observational and analytical skills and will communicate their impressions and findings to others, a process similar to developing a differential diagnosis of a patient's illness. Unlike the goal of arriving at one "correct" answer in medicine, however, this course encourages multiple answers and interpretations. By exploring what various people experience in a work of art, we come to understand that our own perspectives are limited. Occasionally, noting what is absent or not said is as important as what is readily observable. Listening to others' observations enables us to understand more completely and therefore interpret more accurately.

Prerequisite: Successful completion of phase II of the medical curriculum.

HMN 748: Controlling Human Heredity: Lessons From History

2.5 Credits

This course reviews the key steps in the development of our thoughts and practices relating to childbirth and medical genetics over the past 400 years.

Prerequisite: successful completion of all required 3rd year clerkships

HMN 749: Sufferers and Healers: Lessons From History

2.5 Credits

This course reviews the key steps in the development of medicine from its supernatural beginnings steeped in magic and religion through the creation of medical science.

Prerequisite: successful completion of all required 3rd year clerkships

HMN 750: Creativity, Art, and Healing (CAH)

2.5 Credits

This course introduces students to the core components of the creative arts and healing.

Prerequisite: successful completion of all third year core clerkships

HMN 751: The Narratives of Aging: Exploring Creative Approaches to Dementia Care

2.5 Credits

This course invites students to examine brain aging in an historical and cultural context, and contrast dominant reductionist understandings of dementia with a more humanistic, biopsychosocial model of care resurgent in recent years that places greater relative emphasis on the remaining strengths, capacities, and creativity of persons with dementia rather than focusing on deficits and losses.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 752: Chronic Disease and the Self

2.5 Credits

Utilizes published autobiographical patient narratives and live patient interviews to explore the impact of illness.

Prerequisite: successful completion of the first three years of medical school

HMN 753: Finding 'Right' Answers: Solving Ethical Dilemmas in Medical Practice

2.5 Credits

At the end of the four weeks students will be equipped with four cognitive frameworks for thinking about and solving ethical issues in their clinical practice.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 754: The Practice of Virtue in Medicine

2.5 Credits

This course requires the student to study and recognize the great human virtues and to learn to practice virtue in medicine.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 755: Compassionate Surgical Care

2.5 Credits/Maximum of 999

This course, intended for students pursuing residency in surgically-based specialties, seeks to explore the interactions that occur between patient and surgeon, from both perspectives, through group discussions, simulated patient scenarios, real patient encounters, and assigned reading.

HMN 756: Jazz and the Art of Medicine

2.5 Credits

This is a course that focuses on improving learners' patient-physician communication through building skill in improvisation.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 757: "Are You Listening?" Developing Effective Communication With Our Patients

5 Credits

Effective communication with patients is a vital skill for every physician. This course will delve into the interpersonal space between physician and patient.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 758: Documentary Filmmaking About Innovations in Patient Centered Care

5 Credits

Students make short documentary films about innovations that make care more patient centered.

Prerequisite: successful completion of all required 3rd year core clerkships

HMN 759: Impressionism and the Art of Communication

2.5 Credits/Maximum of 2.5

This four-week Humanities Selective will be offered once a year during Phase-4, building on medical communication skills learned in earlier phases. Communicating effectively with patients is a critical skill necessary for physicians across all specialties. It is a competency that can be studied and learned, and then fine-tuned over time. Possessing techniques that facilitate good medical communication can increase patient satisfaction, reduce patient's mental and physical distress, and ultimately result in improved health of individuals and populations. Understanding the importance of providing the patient with space to tell their story can result in improved understanding and a more

efficient diagnostic process. Recognizing the value of observation can increase a physician's sensitivity to patients and diagnostic clues. An awareness of preconceptions when caring for patients, especially those that are different from us, can help to guard against cognitive bias. In addition, appreciating different interactive styles can help physicians deal more effectively with a variety of challenging patients. The Impressionist Movement of the late 19th century created a novel approach to communication through painting that was distinct from accepted artistic standards of that time. This new painting style fostered a more open and less rigid approach to communication on the artist's canvas. It also embraced the art of observation in the natural setting, and in the process challenged the cognitive bias of that generation about what art had value and worth. The impressionists presented a challenging cadre of artists, each with their own communication style whose behavior was frequently a reflection of mental or physical illness, much like our patients demonstrate. As such, the painters that launched the Impressionist Movement over a century ago can provide a useful metaphor to study effective approaches to medical communication in the present. The course will consist of a Standardized Patient session at the beginning and end of the course. This selective is delivered as six classes, each covering a different topic: Introduction to Painting as Communication, Structure vs. Space, The Art of Observation, Cognitive Bias, The Challenging Patient., and Reflection and Communication through Art. Dialogue on these topics is facilitated through the use of selected readings/film/ video, written assignments, team-based learning and pre-learning prior to class. Active learning is promoted through both individual and team-based painting exercises at University Park Campus and Penn State School of Visual Art, and observational exercises at Penn State University's Palmer Museum of Art. Two interactive presentations by a Penn State professor of Art History help to ground students in understanding the Impressionist Movement and sets the stage to compare communication through art and medical communication with patients.

HMN 760: Viewing Translational Genomics Through an Ethical, Legal/Policy, Social Implications (ELSI) Lens

2.5 Credits/Maximum of 2.5

This Humanities selective is designed for students interested in exploring the ethical, legal/policy, social implications (ELSI) of Translational Genomics. Translational genomics is a broad term that generally applies to the process of moving genomic science and technologies from the research laboratory into the clinical and public health domains. In the context of this course, it also refers to the use of emerging, novel (e.g. 'cutting edge') science in the clinic and for public health purposes. Genetics and genomics are rapidly entering the clinic and public health as tools not just for single gene conditions and rare conditions. In addition, the increased availability of one's genomic information has led to its secondary use in the legal system (e.g. foensics), search for family members, and determining family ancestry. Over the last several decades, ethicists, legal scholars, and social scientists have written and commented on the challenges in genetic research and translating new genetic technologies and research findings in these various domains, and with the increased access to genomic information, examining the different policy and social issues that arise continues to be important so as to facilitate ethical and responsible use of the technology.

Prerequisite: Successful completion of Phase II.

HMN 761: Literature, Medicine, and Culture

2.5 Credits/Maximum of 2.5

Literature, Medicine, and Culture provides students with an opportunity to consider contemporary medicine and treatment in relation to historical experiences, ideas, and imagination. Course readings explicitly pose questions about the present in relation to the past, the challenges of modern therapeutics and how they affect enduring ideas about human nature, and the experience of illness from the patient perspective. Students will build on their Humanities and Systems knowledge base concerning the cultural contexts of illness, treatment, and care. Course content varies according to instructor expertise and topic selection. Students who complete the course will increase their knowledge about medical history and the patient experience, imaginative portrayals of illness and health, and societal approaches to disease and disability. They will be able to identify rhetorical features of disease narratives and historically consistent elements of human experience of illness. In addition, students will enhance skills in reading, interpretation, and analytic writing, as well as observational skills. Classroom discussion and informal assignments help students develop sophisticated understanding of medicine and human experience in context, training them to think critically and in complex ways about the human experience of health and illness, and to represent their developing ideas in written assignments and/or creative projects. Other elements of health humanities learning, such as consideration of professional identity formation and ethics, may be included in course content.

HMN 762: Art as Self Care

2.5 Credits/Maximum of 2.5

The purpose of this fourth-year humanities selective is to explore how healthcare trainees can engage with the arts in ways that promote self-care. Instead of spending one month having students read and talk about how they can use the arts for self-care, we challenge them to take a year and actually do it. This course is for all levels of artists-there is no expertise, past experience, or special talent required. This course is open to Hershey and UP students.

Prerequisite: Successful completion of Phases I and II

HMN 763: A History of Medicine with Contemporary Application for Personal and Professional Development

2.5 Credits/Maximum of 2.5

This course will progress in a linear fashion through the historical context of the development of medicine as a profession. The sessions will be themed and include such transitions as the professional journey from description to scientific method, from priest to clinician, and from low to high patient expectations. Illustrations will include the life and contributions of historical figures beginning with Hippocrates and Galen. Student facilitated discussion will be directed toward identification of parallels between historical and modern-day applications. Students will be asked to reflect on comparisons between past and present practice philosophy, patient relationships, and end goals of the healing process. The class will engage in the study of historical text and personalities to prepare students for their own continuing professional development. A reflective paper from each student on a topic of choice will be shared in group discussion during the last session.

Prerequisite: Successful completion of phase II of the medical curriculum.

HMN 796: Individual Studies

1-15 Credits/Maximum of 15

Studies outside the scope of formal courses, supervised on an individual basis.

Prerequisite: permission of department chairman

HMN 797: Special Topics

1-6 Credits/Maximum of 6

Formal courses given on a topical or special interest subject which may be offered infrequently.

Independent Study (INDEP)

INDEP 730: Intensive Review of Medical Knowledge

4 Credits

This four-week elective will promote foundational study skills, incorporation of best practices for assessment preparation, and development, execution, and adaptation of study plans to achieve academic competency and fulfill professional developmental milestones. Enrollment in this course is limited to those students authorized for enrollment by the Associate Dean for Medical Education or the Assistant Dean for Education in the Clinical Learning Environment.

Prerequisite: Successful Completion of Phase I, restricted enrollment

Medical Home Curriculum (MHC)

MHC 797: Medical Home Longitudinal Curriculum - Pilot

2 Credits

Medical Home Longitudinal Curriculum (3rd year pilot course).

Prerequisite: successful completion of the first and second year medical school curricula.

MHC 797A: Medical Home Longitudinal Advanced Elective

5 Credits

The Medical Home Longitudinal Advanced Elective will provide continuity experiences for students to learn and witness the natural progression of illnesses, develop treatment options over time in a team format, as well as develop empathetic healing relationship with patients.

Prerequisite: successful completion of the first three years of medical school curriculum. Approval from student's faculty advisor.

Medical Student Research (MSR)

MSR 711: Medical Student Research Project I

1 Credits/Maximum of 1

This course will introduce students to the basic principles of clinical and translational research in preparation for future clinical practice and also introduce students to the medical student research program at Penn State College of Medicine. It will prepare them for the later creation of their research proposal and report on the required medical student research project. Research ethics is an important part of this course, including

how to protect human research subjects and how to maintain research integrity in the face of common challenges. Students will learn how to conduct an effective literature search strategy using databases of the published biomedical literature. In short, this course will provide the basic knowledge and tools necessary to successfully navigate the clinical and translational research environment.

MSR 742: Medical Student Research Project II

1 Credits/Maximum of 1

This Phase III course is required of all Penn State College of Medicine students (with the exception of MD/PhD students) and culminates in the submission of a final report on a research project proposed and carried out longitudinally in medical school in which the student makes significant contributions to data collection, analysis, and preparation of the manuscript. You will be supported in your research journey by working with a faculty mentor to achieve project milestones, such as submission of a proposal which is reviewed to ensure that your proposed project is specific and attainable. Research projects may be independent or in collaboration with a research team. Students may choose to perform research in many areas, including basic science lab research, clinical research, systems science, humanities or social sciences research. The final report will include all or most of the elements of a published journal article, including abstract, introduction (containing a statement of the problem and background information), specific Aims/objectives, Methods/Subjects, results, conclusion, discussion, and references. Literature reviews, meeting abstracts, and case reports do not fulfill the requirement. The title of your Medical Student Research Project will be included in your Medical Student Performance Evaluation (MSPE), which is a component of your residency application. Your proposal for your MSR must be submitted prior to the writing of your MSPE. Your final written report must be submitted in January of your Phase III.

Prerequisite: Successful completion of MSR I course

Medical Triage and Resuscitation (MEDTR)

MEDTR 743: Triage and Resuscitation

5 Credits

This course provides knowledge and skills necessary for recognition and initial management of the patient with a potentially life-threatening illness or injury.

Prerequisite: successful completion of the core third-year medicine and surgery rotations.

Medicine - Interdisciplinary (MDADM)

MDADM 700: Ambulatory Medicine Clerkship

6 Credits/Maximum of 6

This rotation involves spending 4 weeks embedded within a primary care or sub-specialty ambulatory setting throughout our academic health system and the communities it serves. Students will grow their history, physical, assessment and plan skills for the types of patients receiving care at their particular site. Through this experiential learning opportunity, students will be challenged to understand their patients as persons navigating complex health systems about their unique circumstances and life stories. In addition, students will be challenged to apply health

systems quality improvement principles and think about ways to harness technology and quality improvement principles to the ambulatory setting. The student schedule will be focused on one particular clinical site with one primary preceptor. Students will have 2-3 half days with no assigned clinical duties during which they are expected to complete the assessments outlined below.

Prerequisite: Completion of Phase I.

MDADM 730: Complex Interprofessional Care

3 Credits/Maximum of 3

This rotation involves spending one week with the Division of Geriatrics faculty caring for patients in post-acute care and skilled nursing facilities providing primary care for medically complex older adults, and performing dementia care consultations in the outpatient memory clinic. This week will focus on learning how to perform: a) appropriate geriatric patient assessments, including but not limited to mental status examinations, capacity assessments, frailty assessments, assisting with end-of-life decision making (including surrogate decision making and futility assessments), b) functional assessments, and c) building knowledge about healthy aging processes. It will also include reflection on the benefits/challenges with coordination of care across care settings and how to collaborate with interdisciplinary team members to maximize independence and deliver optimal, safe, age-friendly care. Another week is spent embedded in the Cancer Institute experiencing patient care delivered at the infusion center, the interdisciplinary CARE Center, and the oncology clinics. Through these experiences, students will not only learn about healthy aging versus aging with medical complexity, but they will also gain insight into key systems science and humanities principles such as coordination of care, interdisciplinary teaming, ethics at the end of life (including advance care planning, futility assessments, capacity assessments, and surrogate decision making), and the challenges of current health system structures and processes. Students will work directly with multiple different team members, including psychologists, advanced practice providers, and physicians to learn how multidisciplinary institutes deliver multifaceted, optimal patient care in one setting. Students will also attend tumor boards and grand rounds at the Cancer Institute which are ideal settings to learn essential coordination of care and clinical reasoning skills. Through experiences in both contexts, students will be challenged to understand their patients as persons navigating complex health systems in relation to their own unique circumstances and life stories. In order to closely approximate the schedule students will have when they become attending physicians, the schedule is comprised of half days of experiences. Students will have 2-3 half days with no assigned clinical duties during which they are expected to complete the assessments outlined below.

MDADM 741: Community-Based Advocacy Elective

4 Credits

This four-week long course is an elective available to students enrolled in Phase III. The aim of this course is to 1) establish a service learning elective rotation for medical students to be embedded in a community organization, 2) have students actively apply their knowledge and skills in the Quintuple Aim (i.e., health equity, provider satisfaction, patient satisfaction, population health, lowering costs) by engaging in a continuous quality improvement project identified by the community organization, and 3) teach students the practicalities and barriers to identifying and addressing health inequities so they learn how to advocate for change.

MDADM 744: Systems-Conscious and Humanistic Medicine

2 Credits/Maximum of 2

This course revisits key systems science and humanities concepts in the context of clerkships, while also preparing students for the UME to GME transition. Students will engage in Morbidity and Mortality (M&M) conferences and analyze each M&M case from a systems and humanities lens. Students will also practice advanced clinical skills that require excellence in humanities and systems domains, such as how to perform quality improvement projects, effectively transition care of a patient to a night team or separate team entirely, place orders and call consults, organize a team in urgent care situations, and how to engage in an informed consent dialogue. In addition, the course includes key professional development topics such as instruction on 1) building a personal statement for residency applications, 2) the process of selecting residency programs to which to apply, and 3) approaches to residency interview season.

Medicine - MD (MED)

MED 700: Internal Medicine Clerkship

12 Credits/Maximum of 12

The clinical Clerkship in Internal Medicine is designed to build upon your previous basic science knowledge and provide you with broad exposure to the content and practice of Internal Medicine. Your experiences during the Clerkship will include: "Med A" - One four-week block during which you will function as a team member on the inpatient General Internal Medicine service at the Hershey Medical Center or an affiliated institution, Holy Spirit Hospital, Lebanon Veterans Administration Medical Center, Pinnacle Health System, or University Park/Regional Campus. "Med B" - One two-week block during which you will rotate through a clinical selective in one of the Department of Medicine subspecialties (e.g. cardiology, hematology/oncology, gastroenterology, pulmonology, nephrology). "Med C" - One two-week block during which you will rotate through a clinical selective, primarily in the ambulatory setting, in one of the Department of Medicine subspecialties (e.g. general internal medicine, endocrinology, rheumatology, allergy-immunology).

Prerequisite: Successful completion of Phase I coursework & pass Step 1

MED 715: Clinical Elective in Infectious Disease

5-10 Credits/Maximum of 10

Principles of human-host defense mechanism, host-parasite interactions, manifestations of various infections, systematic approach to problem solving, rational use of antibiotics.

Prerequisite: third-year core clerkships and permission of staff

MED 721: Cardiology Elective for 3rd Year Students

5 Credits/Maximum of 5

Students learn non-invasive and invasive cardiology procedures, then work as clinical clerks on an in-patient cardiology service.

Prerequisite: successful completion of the first two years of medical school

MED 722: Medicine Acting Internship

5 Credits/Maximum of 5

Active participation on an advanced level in the diagnosis and management of patients admitted to the General Internal Medicine Services. More responsibility for decision-making and patient management is afforded subinterns than clinical clerks.

Prerequisite: successful completion of 3rd year core clerkships.

MED 723: Clinical Elective in Gastroenterology

5-15 Credits/Maximum of 15

A program in clinical gastroenterology to expose student to basic GI physiology, pathophysiology, and management of gastrointestinal and liver problems.

Prerequisite: basic core clerkships

MED 724: Clinical Elective in Hematology

5-15 Credits/Maximum of 15

Provides students with the basic understanding of the fundamental problems of hematology.

Prerequisite: third-year medicine core clerkship

MED 725: Clinical Elective in Medical Oncology

5-15 Credits/Maximum of 15

Introduces students to cancer chemotherapy and immunotherapy with emphasis on workings of lymphoma and solid tumor patients.

Prerequisite: third-year medicine core clerkship

MED 727: Elective in Pulmonary Medicine

5-15 Credits/Maximum of 15

A clinical program in pulmonary medicine with emphasis in pulmonary physiology, pathophysiology, and patient diagnosis and management.

Prerequisite: basic third-year core clerkships

MED 728: Clinical Program in Nephrology

5-10 Credits/Maximum of 10

Problems in clinical nephrology with emphasis placed on a pathophysiologic approach. Introduction to renal biopsy, peritoneal dialysis, and hemodialysis.

MED 729: Clinical Program in General Internal Medicine

5-15 Credits/Maximum of 15

Introduction to the variety of illnesses and problem-solving techniques of the general internist.

MED 733: Cardiology Acting Internship

5 Credits/Maximum of 5

Advanced training in cardiovascular pathophysiology and diseases for fourth-year students functioning as acting interns.

Prerequisite: third-year core clerkships

MED 734: Clinical Elective in Endocrinology

5-15 Credits/Maximum of 15

Expose students to a large number of clinical endocrine problems, familiarize them with diagnostic laboratory procedures used in evaluating patients.

Prerequisite: basic core clerkships

MED 736: Clinical Management of Obesity

5 Credits

This course provides exposure to the multifaceted area of obesity management, including diabetes, bariatric surgery, medical management and pediatrics

Prerequisite: successful completion of any third year course which includes direct patient care; permission of instructor required (email Dr. Boan or Dr. Ku); or successful completion of second year medical school at Penn State University Coll

MED 737: Clinical elective in Rheumatology

2.5 Credits/Maximum of 2.5

The Clinical Rheumatology elective is a TWO-week course that is designed to cover the rheumatologic conditions that are most germane to any practitioner. The course will provide an introduction to common and some less common diseases that affect the joints and systemic immune system. This course is focused on those conditions that should be known by practitioners in any field. Course material will be presented in the form of bedside teaching in the clinic and on inpatient consultation rounds, weekly teaching sessions with other trainees, conferences with faculty, and readings from textbooks and online learning modules. Central themes of the course are recognition and diagnosis of these diseases, use and interpretation of diagnostic tests and familiarity with major rheumatologic therapeutics. Students will be expected to be able to generate a differential diagnosis for patients being evaluated in clinics or on inpatient consultation rounds.

Prerequisite: Participation in an accelerated pathway

MED 738: Clinical Elective in Cardiology–Consultation Service

5 Credits/Maximum of 5

Students evaluate and follow in-patients on general non-cardiology services with cardiac problems referred to the Cardiology Consult Service.

Prerequisite: satisfactory completion of the Third Year Medicine Core Clerkship

MED 742A: Allergy and Immunology Clinical Elective for 3rd Year Students

2.5 Credits/Maximum of 2.5

Allergy and Immunology Clinical Elective for 3rd year students.

Prerequisite: permission of instructor

MED 745: Geriatric Elective

5 Credits

Students will perform assessments and develop care plans for hospitalized elders who are transitioning to home or long-term care setting.

Prerequisite: successful completion of all required clerkships

MED 747: Pediatric Allergy, Asthma and Immunology Elective

5 Credits/Maximum of 5

This course provides exposure to basic concepts for diagnosis and management of children and adults with allergic and immunologic diseases and respiratory and cutaneous abnormalities. MED 747 Clinical Elective in Allergy, Asthma and Immunology (5) The fourth year student rotating on the allergy service will experience an active and up to date Allergy and Immunology clinical service. Diseases you will be managing include allergic skin disorders, asthma, sleep, rhinitis, sinusitis, primary immunodeficiencies, recurrent infections, drug, food and insect allergy, and anaphylaxis. Developing an excellent history to include occupational, environmental and travel history will be facilitated. The student will be able to participate as an active member of the clinic and will have responsible for the patient. We anticipate that you will act as an intern and will manage the patient completely from start to finish. Clinic hours are daily 8 AM to 5 PM except Weds AM which is our academic time. In addition, to clinic there is an opportunity to participate in inpatient consults; however, the majority of time (90%) will be spend in the clinic seeing patients. Techniques include skin biopsy, skin test, patch testing, spirometry, and patient education and there will be ample opportunity to practice these techniques. Most of the education is done bedside during the patient's visit. Lastly, we expect that the student will present a short power point presentation, develop a manuscript or participate in research if time permits.

Prerequisite: successful completion of the 3rd year required clerkships
Cross-listed with: PED 747

MED 748: Adult Rheumatology Elective

5 Credits

This course provides exposure to concepts utilized in the diagnosis and management of rheumatic diseases in adults. MED 748 Adult Rheumatology Elective (5) This course is designed to introduce fourth year medical students to the basics of evaluation and management of adults with musculoskeletal disease with an emphasis on diagnosis and treatment of inflammatory and non inflammatory arthritis. This primarily outpatient experience will build on the concepts presented during the second year didactic course in MSK medicine that dealt with rheumatology topics as well as the Island I MSK portion which utilized physical diagnosis skills related to musculoskeletal joint evaluation. Students on this elective will serve as an integral part of the team and will be the first contact with returning and new patients in the outpatient clinic setting having had a chance to interact one on one with patients in order to practice history taking and exam skills. Students will then present the information to the attending physician where management and treatment options will be discussed. Pertinent physical exam and radiographic findings will be noted and technique for joint aspiration and injection will be demonstrated in the appropriate patients. Students will be expected to demonstrate evidence of independent reading on rheumatology topics and preparation of case based presentations for

weekly conferences. Opportunities for interested students to participate in pediatric rheumatology clinics are also available during this time. The overall goal of this elective is to allow students to attain the basic skills and knowledge necessary for the initial evaluation and diagnostic work up of common presenting musculoskeletal complaints in the primary care outpatient and in-patient settings. Emphasis will be placed on pathophysiology, differential diagnosis, physical exam findings and management options as well as the essential portions of the history and physical exam. Students will be encouraged to practice their musculoskeletal exam skills under supervision in order to become proficient by the end of the four week elective. Evaluation methods will include a pre-test and post-test as well as subjective evaluation of students' fund of knowledge and patient care skills by the attending rheumatology faculty. This course will be offered throughout the entire academic year.

Prerequisite: completion of all of the third year core clerkships

MED 749: Medical Intensive Care Acting Internship (4th year)

5 Credits/Maximum of 5

Senior students assume Acting Intern responsibilities for Medical ICU level patients. This intense training is recommended for highly motivated students interested in a "hands-on" experience in the critical care unit.

Prerequisite: successful completion of third year core clerkships.

MED 757: Hematology-Oncology Subinternship

5 Credits/Maximum of 5

Students will function as acting interns in the inpatient hematology/ oncology unit under the direction of senior housestaff fellows and faculty.

Prerequisite: third-year core clerkships

MED 759: Oral Anticoagulants

5 Credits/Maximum of 5

Oral anticoagulants are one of the more frequently prescribed classes of medications to treat common diagnoses (e.g., deep vein thrombosis, pulmonary embolism, nonvalvular atrial fibrillation) as well as utilized in rather complex patient populations such as transplant, oncology, and those receiving mechanical circulatory support. The appropriate use of oral anticoagulants also requires an understanding of the biochemistry of coagulation and the pathophysiology behind bleeding and thrombosis. The goal of this course is to provide students with a foundational understanding of the appropriate use of oral anticoagulants in the outpatient setting from a multidisciplinary perspective. Students will apply their knowledge of biochemistry of coagulation, the pathophysiology of bleeding and thrombosis, and the pharmacology of oral anticoagulants learned throughout Phase I during case discussions, journal club, conferences, and when participating in the direct patient care thrombosis clinic. They will work with a multidisciplinary health care team and contribute to the continuity of care these patients require in an outpatient setting.

Prerequisite: Requires successful completion of Phases I and II courses and clerkships. Builds off Phase II coursework.

MED 796: Medicine Individual Studies

5 Credits/Maximum of 5

Clinical or laboratory research on a selected topic by special arrangement with member of faculty who will act as preceptor.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for prior approval before registering for this course.

MED 796A: Medicine Individual Studies for 3rd Year

2.5 Credits

Medicine individual studies for 3rd year.

MED 797: Medicine Special Topics

5 Credits

Advanced clinical training in internal medicine or subspecialty –neurology, cardiology, clinical pharmacology, hematology, gastroenterology, endocrinology, pulmonary medicine, renal disease.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

MED 797A: Cardiorespiratory

4 Credits

Cardiorespiratory

MED 797B: Reproductive Medicine/Endocrinology

6 Credits

Advanced clinical training in internal medicine or subspecialty –neurology, cardiology, clinical pharmacology, hematology, gastroenterology, endocrinology, pulmonary medicine, renal disease.

MED 797D: Profession of Medicine II

2 Credits

Advanced clinical training in internal medicine or subspecialty –neurology, cardiology, clinical pharmacology, hematology, gastroenterology, endocrinology, pulmonary medicine, renal disease.

MED 797E: Translating Health Care Science

1 Credits

Advanced clinical training in internal medicine or subspecialty –neurology, cardiology, clinical pharmacology, hematology, gastroenterology, endocrinology, pulmonary medicine, renal disease.

Musculoskeletal System (MSK)

MSK 740: Clinical elective in Musculoskeletal Infectious Disease

2.5 Credits/Maximum of 2.5

The Clinical MSK infectious disease elective is a two-week course that is designed to cover the infectious conditions that should be known by any practitioner, as well as the orthopaedic surgeon. The course will provide an introduction to common and some less common diseases

that affect the joints, long bones, soft tissues, orthopaedic implants, and infections unique to the diabetic. Course material will be presented in the form of bedside teaching in the clinic and on inpatient consultation rounds, weekly teaching sessions with other trainees, conferences with faculty, and readings from textbooks and online learning modules. Central themes of the course are recognition and diagnosis of these diseases, use and interpretation of diagnostic tests and familiarity with antibiotic therapeutics. Students will be expected to be able to generate a differential diagnosis for patients being evaluated in clinics or on inpatient consultation rounds.

Prerequisites: Participation in an accelerated pathway in Orthopedics or Family Medicine

Neural and Behavioral Science (NBS)

NBS 721: Neural and Behavioral Science

10 Credits/Maximum of 10

This course is a multidisciplinary introduction to the human nervous system that integrates both basic sciences and clinical disciplines.

Neuroscience - MD (NEURO)

NEURO 700: Neuroscience Clerkship

6 Credits/Maximum of 6

This Clerkship is designed to expose medical students to a wide array of neurological conditions involving the nervous system and its coverings/support structures. On the Hershey campus, the clerkship maintains a core 2-week adult neurology experience that includes one week on either the stroke or the neurocritical care unit (NCCU) services and one week on either the inpatient general neurology or neurology consult services, plus an additional 2 weeks of selectives that provide exposure to other neuroscience disciplines - outpatient neurology, pediatric neurology, and/or Physical Medicine and Rehabilitation (PMR): The 1-week outpatient neurology selective provides a broad exposure to a variety of adult neurological disorders managed in an outpatient clinic setting, including headache, stroke, movement disorders, neuromuscular medicine, neurophysiology and electrodiagnostics, epilepsy, cognitive and behavioral medicine, and neuroimmunology. The 1-week selective in pediatric neurology provides exposure to a variety of medical pediatric/congenital nervous disorders in inpatient and outpatient settings. The 1-week selective in PMR provides exposure to the functional evaluation of neurological disorders and the multidisciplinary rehabilitative management of patients recovering from acute neurological disorders and those with chronic neurological disease.

Prerequisite: Successful completion of Phase I coursework & pass Step 1

NEURO 740: Clinical Neuroscience Clerkship

5 Credits/Maximum of 5

The Clinical Neuroscience (CNS) Clerkship is a four-week or equivalent (i.e.: longitudinal integrated clerkship) required clerkship designed to expose medical students to a wider array of neurological conditions than can be adequately covered in a traditional clinical neurology clerkship. The clerkship emphasizes an adult neurology experience which is achieved through immersion on an inpatient neurology service (general inpatient neurology or stroke inpatient service). The immersion into adult neurology is supplemented by additional selectives that students

choose based upon their individual interests while meeting core learning objectives of the clerkship: 1. A 2-week selective in neurosurgery or neurosurgery + neurocritical care enhances students' exposure to brain, spine and peripheral nerve trauma; back and neck pain; intracranial (subarachnoid and intracerebral) hemorrhage; nervous system tumors; functional neurosurgery; the surgical management of epilepsy; and surgical pediatric/congenital nervous system disorders; 2. A 1-week selective in pediatric neurology exposes them to a variety of medical pediatric/congenital nervous disorders; 3. A 1- or 2-week outpatient neurology selective provides a broad exposure to a variety of adult neurological disorders managed in an outpatient clinic setting; 4. A 1-week stand-alone neuroscience critical care selective provides exposure to the critical care management of patients with severe neurological disorders, including treatment of status epilepticus, intracranial hypertension, and acute spinal cord injuries, and evaluation of the patient in coma; and 5. A 1-week selective in PM&R provides exposure to the functional evaluation of neurological disorders and the interprofessional rehabilitative management of patients recovering from acute neurological disorders and those with chronic neurological disease.

Prerequisite: Successful completion of Phase I Medical Student courses

NEURO 741: Neurology Acting Internship

5 Credits

The Neurology AI will provide an advanced training in neurological evaluation, diagnosis and treatment in inpatient setting. Students will follow patients at the level of an intern, including admission, diagnostic work up, interdisciplinary team meetings, family discussions, documentation, discharge planning and brief outpatient follow up. Students will follow up on studies (including EMG and EEG) and will perform a lumbar puncture and will perform a formal case presentation.

Prerequisites: Successful completion of Phase I and II

NEURO 796: Neurology Individual Studies

5 Credits/Maximum of 5

Neurology individual studies.

Prerequisite: successful completion of 3rd year core clerkships. Student must meet with course director for approval prior to registering for course.

NEURO 797: Neurology Special Topics

5 Credits/Maximum of 5

Neurology Special Topics.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for this course.

Neurosurgery (NSURG)

NSURG 750: Neurosurgery Acting Internship

5 Credits/Maximum of 5

Neurosurgery Acting Internship.

Prerequisite: successful completion of 3rd year core clerkships - students should contact course director prior to registering

NSURG 750A: Neurosurgery Elective for 3rd Year Medical Students

2.5 Credits/Maximum of 2.5

Neurosurgery Elective for 3rd Year Medical Students.

Prerequisite: successful completion of one third year core clerkship

NSURG 751: Neurocritical Care Acting Internship

5 Credits/Maximum of 5

The Neurocritical Care AI provides students advanced training in the diagnosis and management of critically ill patients with severe neurological disorders and following neurosurgical operative procedures, who are cared for in the specialized Neurocritical Care Unit. Students will learn management strategies for various neurological disorders such as ischemic and hemorrhagic stroke, aneurysmal subarachnoid hemorrhage, traumatic brain and spinal cord injury, brain and spinal cord tumors, neurological infections, hydrocephalus and related CSF disorders, epilepsy, movement disorders and deep brain stimulation, and genetic, inflammatory, toxic/metabolic, nutritional, and degenerative neurological conditions. Students will also learn management strategies for neurological emergencies such as increased ICP, status epilepticus, shock, and respiratory failure. Students will gain technical experience performing bedside procedures such as intubation, line insertions, lumbar punctures, and intracranial pressure monitor and external ventricular drain insertions. Students will assume the comparable role of a PGY 1 resident, and will work collaboratively with the Neurocritical Care Unit interdisciplinary team and other healthcare professionals in the management of their patients, with discharge planners and others in preparation for transfer, and with patients and families. Students will attend required neurosurgery and neurology conferences.

Prerequisite: Successful completion of Phase I and II

NSURG 796: Neurosurgery Individual Studies

5 Credits/Maximum of 5

Neurosurgery Individual Studies.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course

NSURG 797: Neurosurgery Special Topics

5 Credits/Maximum of 5

Neurosurgery Special Topics.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

Obstetrics and Gynecology - MD (OBGYN)

OBGYN 700: Obstetrics and Gynecology Clerkship

6 Credits/Maximum of 6

The OB-GYN Clerkship is a four-week rotation that consists of hands-on clinical experience in various divisions and services provided

by the Department of Obstetrics and Gynecology. The general Obstetrician Gynecologist acts as a referral specialist, provides consultative care, and serves as a primary care physician. The field also incorporates subspecialty care in the areas of Urogynecology and Pelvic Reconstructive Surgery (UPRS), Gynecologic Oncology (Gyn Onc), Maternal-Fetal Medicine (MFM), Minimally Invasive Gynecologic Surgery (MIGS), Reproductive Endocrinology and Infertility (REI), and Complex Family Planning (CFP). Students will have an opportunity to work directly with residents, physicians, advanced practice providers, and other health care staff to care for a diverse patient population.

Prerequisite: Successful completion of Phase I coursework & pass Step 1

OBGYN 701: OBGYN Externship/Subinternship

5 Credits

An elective to provide advanced clinical experience involving community hospital OB/GYN, ambulatory OB/GYN, or selected subspecialties.

Prerequisite: third-year core clerkships

OBGYN 710: Clinical Gynecologic Oncology

5 Credits/Maximum of 5

Active participation in evaluation and management of patients with gynecologic malignancies.

Prerequisite: completion of third-year clerkship

OBGYN 720: Ambulatory and Adolescent Gynecology Elective

5 Credits/Maximum of 5

This course involves active participation in a community outpatient obstetric and gynecology practice.

Prerequisite: completion of third year core clerkships

OBGYN 720A: Reproductive Endocrinology & Infertility Elective

2.5 Credits

This course provides exposure to basic concepts of diagnosis and management of infertility, and of reproductive endocrinologic disorders of women including hyperandrogenicity and anovulation. OBGYN 720A Reproductive Endocrinology & Infertility Elective (2.5) This course is designed to introduce third year medical students to the basic evaluation of human infertility, and expose them to current technologies for addressing the problem. Additionally, students will be introduced to clinical reproductive endocrinology in women, including the underlying biochemical and hormonal basis of normal function, and the recognition and management of common disorders. This will include exposure to genetic and clinical research, and the interplay between what are seen as reproductive endocrine disorders and broader human endocrinology. Experiences will include participation in infertility clinics, endocrinology clinics, vaginal ultrasound sessions, and egg retrieval and embryo transfer procedures.

Prerequisite: successful completion of any third year core clerkship course, and signed approval by the course director

OBGYN 721: Clinical Endocrinology/Infertility

5 Credits/Maximum of 5

Active participation in evaluation and management of outpatient/endocrinology/ infertility problems.

Prerequisite: completion of third-year clerkships

OBGYN 722: Maternal Fetal Medicine Acting Internship

6 Credits/Maximum of 6

The Acting Internship in Maternal Fetal Medicine focuses on expanding baseline knowledge in obstetrics, and to focus on complex and unique care of pregnancies complicated by maternal and fetal medical and surgical co-morbidities. It is the intention for the acting intern to be exposed to facets of the sub-specialty, including inpatient and outpatient consultative services, rounding on and coordination of care for the inpatient service at Hershey Medical Center, surgical exposure with Maternal Fetal Medicine sub-specialists and increased exposure to fetal ultrasound.

Prerequisite: third-year core rotation in obstetrics and gynecology

OBGYN 722A: Perinatology Elective

2.5 Credits

This course provides exposure to basic concepts of management of high risk pregnancies and medical complications of pregnancy. OBGYN 722A Perinatology Elective (2.5) This course is designed to introduce third year medical students to the basic concepts of high risk obstetrics, and expose them to current technologies for monitoring fetuses and diagnosing prenatal disorders. They will review the human physiologic adaptations of pregnancy, and understand the relevance to everyday clinical situations. They will be exposed to genetic counseling, screening, and diagnosis, including the ethical impact of current knowledge and technologies. Finally, they will be exposed to the impact of pregnancy on systemic disorders, such as hypertension, and the impact of those disorders on the health and development of the fetus.

Prerequisite: successful completion of any third year core clerkship course, and signed approval of the course director

OBGYN 723: OBGYN: Family Planning Elective

2.5 Credits/Maximum of 2.5

The Family Planning elective course will enhance patient-centered communication and counseling via outpatient clinical experiences in established early pregnancy and contraception clinics at Penn State, as well as a local Planned Parenthood affiliate clinic providing outpatient abortion care in the first trimester. Students will practice history-taking, review of ultrasound imaging in early pregnancy, and patient-centered counseling. Students may also have the opportunity to assist in procedures under sedation in the main operating room at HMC and at the Hershey Outpatient Surgery Center, as patient care dictates and schedules allow.

Successful completion of Phases I and II courses and clerkships

OB/GYN 724: Preparation for Internship in Obstetrics and Gynecology

2.5 Credits/Maximum of 2.5

This 2-week 4th year elective is designed specifically for students transitioning into their Ob/Gyn internship. In order to better prepare our students here at Penn State COM to meet the ACGME level-1 Obstetrics and Gynecology milestones, we will introduce and/or refresh the following core competencies: perform basic obstetric skills, review intrapartum management, demonstrate basic surgical techniques, recognize obstetric and gynecologic emergencies, preparation for endoscopic and laparoscopic procedures, the basics of ultrasonography, appraisal of the literature, and advanced communication skills, such as hand-offs, consults, and triage. The course content will be delivered in three forms: formal didactic lectures, case-based learning, and simulation exercises for hands-on experience. Simulation exercises include vaginal delivery, Cesarean section, cook catheter placement, hysteroscopy, D&C, simple perineal laceration repair, long-acting reversible contraceptive insertion and surgical skills workshop involving suturing and knot tying. Students will be exposed to the APGO preparation for residency knowledge assessment to evaluate their understanding of ACGME level-1 Ob/Gyn milestones.

Prerequisite: Completion of Phases I and II courses and clerkships**OB/GYN 725: Labor and Delivery elective**

2.5 Credits/Maximum of 2.5

This course provides students with a 2-week, immersive experience in the inpatient Labor and Delivery/Night Float services at Hershey Medical Center. Students will participate on a greater, more independent level alongside attendings, laborists, residents, and nurse midwives. The student will be expected to fulfill the duties of an intern including but not limited to admitting and following patients in labor, seeing and managing triage patients, participating in vaginal, operative and cesarean deliveries, assisting with tubal ligations, rounding on antepartum or postpartum patients, and triaging postpartum issues. Students will learn how to care for patients with antepartum complications, manage labor and obstetrical complications, and provide post-partum care. This course provides an excellent opportunity to further enhance medical knowledge as well as prepare students for a possible residency in Obstetrics and Gynecology.

Prerequisite: Successful completion of Phases I and II courses and clerkships**OB/GYN 741: Urogynecology Ob/Gyn Elective**

2.5 Credits/Maximum of 2.5

This 2-week elective will introduce students to the basics of female pelvic floor disorders including prolapse, urinary and fecal incontinence, and others. A strong understanding of relevant anatomy and physiology will form the basis for a successful rotation evaluating, counseling, and participating in treatment of pelvic floor disorders.

Prerequisite: Successful completion of ObGyn clerkship**OB/GYN 796: OB/GYN Individual Studies**

5 Credits/Maximum of 5

A forum for collaborative research on an individual basis in areas of obstetrics and gynecology, including reproductive biology and endocrinology.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.**OB/GYN 796A: OB/GYN Individual Studies for 3rd Year**

2.5 Credits

OB/GYN individual studies for 3rd year.

OB/GYN 797: OB/GYN Special Topics

5 Credits/Maximum of 5

Formal courses given on a topical or special interest subject which may be offered infrequently.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

Ophthalmology (OPHTH)

OPHTH 760: Ophthalmology Elective

5 Credits/Maximum of 5

This course is designed to provide a broad experience in ophthalmology for any students, regardless of their future career goals.

Prerequisite: Third Year Core Clerkship**OPHTH 761: Clinical Ophthalmology Elective - Brief**

2.5 Credits/Maximum of 2.5

The Clinical Ophthalmology Elective-Brief is a 2-week course that is designed to cover the eye conditions that are most commonly encountered by a general practitioner. The course goal is for students to understand the diagnosis, pathogenesis, and management of a variety of common ophthalmic disorders, as well as become proficient in the use of a direct ophthalmoscope. Typically, students will have the opportunity to rotate through all subspecialties (Anterior Segment and Cataract, Cornea and External Disease, Glaucoma, Neuro-ophthalmology, Oculoplastics and Orbit, Pediatric Ophthalmology, Retina), as well as to participate in the Urgent Care and In-House Consultation Services. This course provides an introductory experience in ophthalmology for any student, regardless of their future career goals. In addition, the schedule can be modified to accommodate particular interests, such as clinical neurosciences, pediatrics, and emergency medicine.

Prerequisites: Successful completion of Phase I**OPHTH 796: Ophthalmology Individual Studies**

5 Credits/Maximum of 5

Ophthalmology Individual Studies

Prerequisite: successful completion of 3rd year core clerkships**OPHTH 796A: Ophthalmology Individual Studies 3rd Year**

2.5 Credits

Ophthalmology Individual Studies for Year 3 Medical Students.

Prerequisite: successful completion of one 3rd year core clerkship

OPHTH 797: Ophthalmology Special Topics

5 Credits/Maximum of 5

Ophthalmology Special Topics

Prerequisite: successful completion of 3rd year core clerkships

Orthopaedics (ORTHO)

ORTHO 710: Adult Orthopaedics for Third Year Students

5-15 Credits/Maximum of 15

An in-depth experience in general adult orthopaedics that can be tailored for students interested in orthopaedics or in primary care.

Prerequisite: Third Year Core Surgery Clerkship

ORTHO 711: Pediatric Orthopaedics for Third Year Students

5 Credits/Maximum of 5

An in-depth experience in pediatric orthopaedics that can be tailored for students interested in orthopaedics or in primary care.

Prerequisite: Third Year Core Surgery Clerkship

ORTHO 730: Adult Orthopaedics Acting Internship

5 Credits/Maximum of 5

An in-depth experience in general adult orthopaedics that can be tailored for students interested in orthopaedics or in primary care.

Prerequisite: Third Year Core Clerkship

ORTHO 731: Pediatric Orthopaedics Acting Internship

5 Credits/Maximum of 5

An in-depth experience in pediatric orthopaedics that can be tailored for students interested in orthopaedics or in primary care.

Prerequisite: Third Year Core Clerkship

ORTHO 740: Rehabilitation Medicine Elective

5 Credits

An in-depth experience in rehabilitation medicine providing clinical experience in both the outpatient clinics and the inpatient unit.

Prerequisite: successful completion of the medicine clerkship. 3rd or 4th year students may register for this course.

ORTHO 741: York-Orthopedic Sports Medicine Elective 3rd or 4th Year Elective

5 Credits

Course provides 4 week exposures to basic concepts for diagnosis and management of sports related injuries and conditions.

Prerequisite: successful completion of all the pre-clinical courses within Years I & II

ORTHO 741A: York-Orthopedic Sports Medicine Elective (3rd Year)

2.5 Credits

Course provides 2 week exposure to basic concepts for diagnosis and management of sports related injuries and conditions

Prerequisite: successful completion of all the pre-clinical courses within Years I & II

ORTHO 796: Orthopaedics Individual Studies Elective

5 Credits/Maximum of 5

Creative projects including non-thesis research supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: limited to students enrolled in the Penn State College of Medicine

ORTHO 797: Orthopaedics Special Topics Elective

5 Credits/Maximum of 5

Formal courses given on a topical or special interest subject which may be offered infrequently and/or offered off-campus.

Prerequisite: Third Year Core Clerkship

Otolaryngology (OTO)

OTO 770: Otolaryngology Acting Internship

5 Credits/Maximum of 5

This course is designed to expand the fourth year students understanding of the evaluation and management of patients with ear, nose, throat and neck problems. Students on this AI will serve as an integral part of the Otolaryngology - Head & Neck Surgery team. This rotation should serve to enhance the head and neck history and examination skills of the student. Student will be expected to personally evaluate patients in the clinic, as well as possibly through the emergency room and inpatient consultation service. Management of these patients will be discussed with resident and attending faculty in formulating a treatment plan. Operative experience will be directed mostly towards routine ear, nose, throat, and neck surgeries. More intense head and neck cases may be utilized as opportunities for head and neck anatomy experiences for all students. For those expressing an interest in otolaryngology - head & neck surgery as a potential career, operative experience can be tailored for the exposure necessary to demonstrate the breadth of otolaryngology - head & neck surgery. Daily conferences and lectures will serve as formal didactics, in addition to the teaching opportunities provided in outpatient clinics and inpatient rounds. The overriding purpose of this rotation is to enhance head and neck skills and to reinforce for students the otolaryngologic pathology that they are likely to see in their clinical practice, regardless of specialty.

Prerequisites: Successful completion of all Phase I and Phase II coursework.

OTO 771: Otolaryngology - Head and Neck Surgery Elective for Third Year Medical Students

2.5 Credits/Maximum of 2.5

This course provides exposure to basic concepts for diagnosis and management of ear, nose and throat problems in children and adults. SURG 771 Otolaryngology - Head and Neck Surgery Elective for Third Year Medical Students (2.5) This course is designed to introduce third year medical students to the basics of evaluation and management of patients with ear, nose, throat and neck problems. Students on this elective will serve as an integral part of the Otolaryngology - Head & Neck Surgery team. This rotation should serve to enhance the head and neck history and examination skills of the student. Student will be expected to personally evaluate patients in the clinic, as well as possibly through the emergency room and inpatient consultation service. Management of these patients will be discussed with resident and attending faculty in formulating a treatment plan. Operative experience will be directed mostly towards routine ear, nose, throat, and neck surgeries. More intense head and neck cases may be utilized as opportunities for head and neck anatomy experiences for all students. For those expressing an interest in otolaryngology - head and neck surgery as a potential career, operative experience can be tailored for the exposure necessary to demonstrate the breadth of otolaryngology - head and neck surgery. Daily conferences and lectures will serve as formal didactics, in addition to the teaching opportunities provided in outpatient clinics and inpatient rounds. The goals of this elective rotation are to enhance head and neck skills and to reinforce for students the otolaryngologic pathology they are likely to see in their clinical practice, regardless of specialty. Evaluation methods will include subjective evaluation of students' funds of knowledge and patient care skills by the attending otolaryngology - head and neck surgery faculty. This course will be offered throughout the entire academic year.

Prerequisites: Successful completion of Phase I coursework.

Pathology - MD (PATH)

PATH 770: Anatomic Pathology

1-15 Credits/Maximum of 15

Study of tissues received daily by the surgical pathology laboratory. Students will assist in and then perform autopsies under supervision.

PATH 796: Pathology Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

PATH 797: Pathology Special Topics

5 Credits/Maximum of 5

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for this course.

Patients and Sciences (PS)

PS 711: PATIENTS AND SCIENCES - COURSE 1

21 Credits/Maximum of 21

PS1 initially immerses students as contributing participants in primary care practices as patient navigators. Authentic patient-based experiences provide the springboard context for learning through small group (Inquiry or "IQ") discussions, expert tutorials, and independent study, guided by experienced educational mentors. PS1 encompasses these core components: - Patient Navigators: Students will immerse in specific community practice sites 3-4 half-days/week under the supervision of both a physician and a care manager. This on-site mentor team will help students to identify and navigate for patients in need of extra attention/communication or with barriers to care. - Inquiry Groups (IQ Groups): Students will meet in small (5-7 students) IQ groups at least 10-12 hours/week to share patient stories, focus questions for exploration, and develop learning objectives encompassing the four pillars of the PSU-COM curriculum - Basic Science, Clinical Science, Health Systems Science, and Humanistic Care. The initial weekly session will focus on patient stories and development of case-based learning goals and objectives. Students will research these objectives for subsequent discussions in Wednesday and Friday IQ sessions. Patient cases will be chosen based on student interest and the degree to which they complement and extend prior learning (see mapping and tracking below). The students will also be assigned a formative weekend assignment based weeks' experiences to synthesize learning from the previous week. These assignments are reviewed on Monday and the IQ cycle begins again. - Integrated clinical skills and anatomy (emphasizing Hypothesis-Driven Diagnostic Learning-HDDL): Time will be devoted each week to clinical skills and related anatomy from patient cases the students have encountered.. - Collaborative Science Tutorials (CST): Based on the model used at Oxford University (see Glossary), the CST will leverage the subject matter expertise available at University Park and Hershey to explore learning objectives identified (by students and faculty) in the IQ Groups as areas of weakness or insufficient coverage. - Assessment: Formative and summative assessment activities have been specifically designed to support active learning, self-assessment, and skills in critical and systems thinking. - Mapping and Tracking: Learning objectives derived from IQ Groups and Collaborative Science Tutorials, self-study, and assessment feedback will be mapped to PSU-COM competencies and sub-competencies scaffolded by the Calgary model of patient presentations (see Glossary). These markers of professional development will be addressed in Portfolio reflections and reviewed with faculty mentors to identify gaps and focus areas for future learning.

Prerequisite: Successful admission to the COM & University Park Program

PS 712: PATIENTS AND SCIENCES - COURSE 2

21 Credits/Maximum of 21

PS-2 builds on navigational immersion from PS-1 to allow students increasing responsibilities as longitudinally contributing participants in primary care health teams. Authentic patient-based experiences provide the context for learning through small group inquiry (IQ) discussions, Collaborative Science Tutorials, and independent study, guided by experienced educational mentors. PS-2 core components: - Practice Immersion: Students will participate in specific community practice sites 3 half-days/week under supervision. - Inquiry Groups (IQ Groups): Students will meet in small (5-7 students) IQ groups at least 10-12 hours/week to share patient narratives, develop questions for exploration

and develop learning objectives encompassing the four pillars of the PSU-COM curriculum - Basic Science, Clinical Science, Health Systems Science, and Humanities. The process will continue in a fashion similar to PS-1. Initial weekly sessions focus on patient summaries in order to develop shared case-based goals and learning objectives. Students research the shared objectives for discussion in Wednesday and Friday IQ sessions. Patient cases will be chosen to complement and extend the depth and breadth of learning initiated in PS-1. The students will also engage in formative, integrative critical thinking activities on Tuesday afternoons to enhance learning. - Integrated clinical skills (emphasizing Hypothesis-Driven Diagnostic Learning–HDDL): Time will be devoted to clinical skill development, building on the scaffold from PS-1. - Collaborative Science Tutorials (CST): The CST will take on an expanding role in PS-2. Based on mapping of objectives from PS-1, identified gaps and areas requiring deeper coverage form the substrate for small group sessions facilitated by subject matter experts from University Park and Hershey. Collaborations with Eberly College of Science, the College of Health and Human Development, the College of Liberal Arts and the College of Arts and Architecture have been established. PSU will build on PS1 learning objectives and continue the mapping process to align with PSU COM core content. - Assessment: Formative and summative assessment activities will be similar to PS-1 and are designed to support active learning, self-assessment, and skills in critical and systems thinking. - Mapping and Tracking: Learning objectives derived from IQ Groups and Collaborative Science Tutorials, self-study, and assessment feedback will continue to be mapped to PSU-COM competencies and sub-competencies and PSU core content. These markers of professional development will be addressed in Portfolio reflections and reviewed with faculty mentors to identify gaps and focus areas for future learning.

Prerequisites: Successful completion of Patients and Sciences -1 (PS1 711)

PS 723: PATIENTS AND SCIENCES - COURSE 3

16 Credits

PS3 is an integrative course designed to complement the experience of the Longitudinal Integrated Clerkship(s) and continue the collaborative learning experience of PS1 and PS2. PS3 encompasses elements for transition and preparation for clinical clerkships as well as material to complement LIC: - Inquiry Groups (IQ Groups): Students will continue to meet in IQ groups at regular intervals to share patient stories, focus questions for exploration, and develop learning objectives encompassing the four pillars of the PSU-COM curriculum - Integrated Science Sessions: Regular seminars to specifically integrate basic and clinical sciences in consultation with the COM and Penn State basic science faculty. - Kienle Groups: Regular sessions to explore medical humanities, ethics and professional identity formation - Clerkship-specific elements: PS3 also includes curricular time and space to address clerkship specific elements such as motivational interviewing, specialty-specific physical examination skills, clinical reasoning, clinical documentation and critical thinking skills.

Prerequisite: Successful completion of PS1 and PS2 & University Park Program PS 711, PS 712

PS 733: Patients and Sciences - Course 4

16 Credits/Maximum of 16

PS-4 is a 20 week course offered in the Summer/Fall semester of the third year in the University Park Curriculum (UPC). Successful completion of this course is required for progression through the UPC. The focus of the

course is to elaborate and extend medical student learning, following their clinical clerkship year, in foundational science as it relates and applies to the practice of evidence-based medicine. Consistent with the educational philosophy and mission of the University Park Curriculum, the course centers on clinical cases and problems that provide the basis for discussing core concepts. Students will actively participate in the discussions and use their skills at information gathering and peer teaching to engage the material and topics. Faculty facilitation ensures that key areas and ideas are organized, discussed and elaborated to maximize student learning and concept integration. While PS-4 provides content included in the board exam, it is not intended to be a board preparatory course. The focus of PS-4 is on foundational science concepts and knowledge to inform medical practice and support lifelong learning. The course builds on authentic clinical patient cases published in the medical literature. Two to three cases provide the context for learning each week. Cases are selected based on core concepts in foundational sciences (Aquifer Science Initiative) and the College of Medicine Core Curriculum. Learning objectives are developed in foundational sciences, with an emphasis on Biochemistry, Neuroscience, Genetics, Molecular Biology, Pathology, Immunology, Pharmacology, and Anatomy. This framework ensures coverage of a broad set of conceptual topics grounded in the selected case studies. Eberly College of Science and Hershey-based College of Medicine faculty serve as content expert discussants. Where possible, cases draw from student experience. Relevant background readings, video, or other web-based instructional material are provided in key topic areas to supplement student-driven research. Laboratory sessions in anatomy are also provided. In addition to the classroom work, all students will continue clinical responsibilities in a continuity practice of their choosing. On average, this experience will occur 1/2 day week. This course is Pass/Fail. Students will be provided with ongoing formative feedback including facilitator and peer feedback and customized NBME MCQ testing (Step 1 Bank) provided in a progress test format. Summative essay examinations will be administered at the mid-point and at the end of the course.

Pediatrics - MD (PED)

PED 700: Pediatric Clerkship

6 Credits/Maximum of 6

This 4-week pediatric clerkship is a continuous required clinical experience in Phase 2 of your medical education at the Penn State College of Medicine. You will have hands-on experiences and an opportunity to work directly with residents, attending physicians, advanced practice providers, and other health care staff. Please refer to your individual schedules as provided. Pediatrics primarily deals with the comprehensive health care of individuals (ages 0 to 18) who are constantly changing physically and psychologically. The mission of this 4-week clerkship is to provide medical students an appreciation and understanding of pediatrics. This is accomplished by providing various clinical and educational experiences that place particular emphasis on recognizing and managing common childhood diseases, assessment of growth and development, immunizations, nutrition, psychosocial issues, and preventative health care.

Prerequisite: Successful completion of Phase I coursework & pass Step 1

PED 710: Pediatric Hematology/Oncology Acting Internship

5 Credits/Maximum of 5

Clinical and laboratory evaluation and treatment of hematologic and oncologic diseases in children. Conferences and rounds. One detailed topic review.

Prerequisite: third year core clerkships

PED 710A: Pediatric Hematology/Oncology Elective (3rd year)

2.5 Credits/Maximum of 2.5

This course provides exposure to the pediatric cancer patient and the field of Pediatric Oncology by closely following several patients through their full range of illness experiences. PED 710A Pediatric Hematology/Oncology Elective (2.5) This course is designed to introduce third year medical students to the field of Pediatric Oncology in a unique way. Students will be assigned selected patients under treatment for cancer or hematologic disease. Students will follow these patients and their families closely for the 2-week selective, but in addition to focusing on the medical care, the student will follow each patient through his or her entire experience. The student will be expected to research the primary disease and other medical issues of their assigned patients, attend daily rounds, and will also accompany and observe the patient through experiences related to their illness. These may include diagnostic tests, physical therapy, dietary, pharmacy, social work contact, play activities, and clinic visits and home visits if the patient is discharged. The student's experience will require contact with multiple consultants and departments involved in the care of their patients, including physicians, nurses, pharmacists, the team psychologist, teachers, social workers, child life, dieticians and others. Each student will meet at least weekly to discuss the assigned patients with one of the Pediatric Hematology/Oncology attendings and with the team psychologist. Rather than write daily notes, the student will keep a journal and prepare a written or oral presentation on at least one of their patients. The overall goal of the elective is to allow students to appreciate the scope of Pediatric Hematology/Oncology through the eyes of the patient and the entire medical team. This unique approach should lead the student to integrate knowledge and gain insight into the medical field not available through any other rotation. Evaluation will be by faculty but may include comments by the patients, their families, and other members of the medical team, as well as the quality of the student's final presentation.

Prerequisite: successful completion of any third year required clerkship that includes direct patient care (Pediatrics, Medicine, Surgery, Family Medicine, OB/GYN).

PED 715: Pediatric Infectious Disease 4th Year Elective

5 Credits/Maximum of 5

This 4-week elective builds on skills students have developed throughout their previous basic science knowledge and clinical rotations to provide them with additional exposure to the diagnosis and treatment of infections in children. Rounding with the consulting team: Students will work with the attending Pediatric ID physician, as well as any other learners (residents, students) who may be on the rotation to see new consults and follow up existing patients. Students will be responsible for performing the initial consult, including the history and physical, and then presenting the patient on rounds. The consulting service usually receives 15 new consults each week. Students will also have opportunities to see patients in the outpatient setting and round with the Antimicrobial

Stewardship Team if they are interested. Other activities include weekly microbiology rounds and ID case conference.

Prerequisite: Completion of Phases I and II courses and clerkships

PED 720: Pediatric Endocrinology

5 Credits/Maximum of 5

Clinical applications of basic endocrine concepts, gland functions, and effects upon growth; evaluation of endocrine tests in disease states.

Prerequisite: PED 700

PED 726: Clinical Genetics

5-10 Credits/Maximum of 10

Mendelian and molecular principles of human genetics; genetic bases of human disease, quantitative human genetics, prenatal diagnosis, genetic counseling.

PED 727: Neonatology Acting Internship

5 Credits/Maximum of 5

Acting Internship emphasizing physiology of the newborn infant; concepts, practice, and procedures of intensive perinatal life support.

Prerequisite: successful completion of the Pediatrics core clerkship

PED 728: Pediatrics-Milton Hershey School Elective

5 Credits

This is an outpatient exposure to primary care medical problems of children in grades K-4 through 12.

Prerequisite: completion of third-year core clerkships

PED 739: Pediatric Cardiology Elective with Global Health Experience

5 Credits

This course provides exposure to basic concepts for diagnosis and management of children with cardiovascular diseases and cardiac abnormalities with a global health experience.

Prerequisite: successful completion of 3rd year clerkship in pediatrics and completion of 3rd year. This block is only offered for the end of October-November block (provided that external funds can be secured).

PED 740: Pediatric Cardiology Elective (4th year)

5 Credits/Maximum of 5

This course provides exposure to basic concepts for diagnosis and management of children with cardiovascular diseases and cardiac abnormalities.

Prerequisite: successful completion of 3rd year clerkship in pediatrics and completion of 3rd year. 3rd year students may apply for the last 2 blocks of the academic year (transition to internship for 4th year students) but preference wi

PED 741: Pediatric Pulmonary and Sleep Medicine Elective

5 Credits/Maximum of 5

This course provides experience in basic concepts of the pathophysiology and clinical management of children with respiratory conditions and sleep neurobehavioral abnormalities.

Prerequisite: successful completion of the third year Pediatrics Clerkship

PED 742: Pediatric Developmental & Behavioral Elective

5 Credits/Maximum of 5

This course provides exposure to basic concepts for diagnosis and management of children with behavior problems and developmental delays.

Prerequisite: successful completion of 3rd year clerkship in pediatrics

PED 747: Pediatric Allergy, Asthma and Immunology Elective

5 Credits/Maximum of 5

This course provides exposure to basic concepts for diagnosis and management of children and adults with allergic and immunologic diseases and respiratory and cutaneous abnormalities. MED 747 Clinical Elective in Allergy, Asthma and Immunology (5) The fourth year student rotating on the allergy service will experience an active and up to date Allergy and Immunology clinical service. Diseases you will be managing include allergic skin disorders, asthma, sleep, rhinitis, sinusitis, primary immunodeficiencies, recurrent infections, drug, food and insect allergy, and anaphylaxis. Developing an excellent history to include occupational, environmental and travel history will be facilitated. The student will be able to participate as an active member of the clinic and will have responsibility for the patient. We anticipate that you will act as an intern and will manage the patient completely from start to finish. Clinic hours are daily 8 AM to 5 PM except Weds AM which is our academic time. In addition, to clinic there is an opportunity to participate in inpatient consults; however, the majority of time (90%) will be spent in the clinic seeing patients. Techniques include skin biopsy, skin test, patch testing, spirometry, and patient education and there will be ample opportunity to practice these techniques. Most of the education is done bedside during the patient's visit. Lastly, we expect that the student will present a short power point presentation, develop a manuscript or participate in research if time permits.

Prerequisite: successful completion of the 3rd year required clerkships
Cross-listed with: MED 747

PED 750: Pediatric Nephrology/Diabetes

5-10 Credits/Maximum of 10

Outpatient and inpatient clinical concepts/diagnosis and management of children with acute and chronic renal disease or renal electrolyte abnormalities.

Prerequisite: PED 700

PED 750A: Pediatric Nephrology Elective (3rd year)

2.5 Credits

This course provides exposure to basic concepts for diagnosis and management of children with kidney disease or fluid/electrolyte abnormalities. PED 750A Pediatric Nephrology Elective (2.5) This

course is designed to introduce third year medical students to the basics of evaluation and management of children with kidney disease or hypertension, and to specifically to solidify skills gained in fluid and electrolyte management during the third year core clerkships including Pediatrics or Medicine, and in the year II Renal block. Students on this elective will serve as an integral part of the Pediatrics Nephrology team, personally evaluating and discussing management of patients on the inpatient, consult, and outpatient Pediatric Nephrology services. Didactic experiences will include daily, one-on-one discussions with the attending physician(s) on the Pediatric Nephrology service. Students will be expected to demonstrate evidence of independent reading in Pediatric Nephrology topics, and to attend scheduled Pediatric Nephrology and selected Pediatrics conferences. The overall goal of this elective is to allow students to attain the basic skills and knowledge necessary for initial evaluation of common Pediatric Nephrology problems encountered in primary care and in-patient pediatrics settings. Focus will be placed on review of renal physiology as it pertains to patient care, and to fluid and electrolyte management. Students will also be encouraged to hone their skills in obtaining a pediatric history and performing a pediatric physical exam. Evaluation methods will include a pre-test and post-test as well as subjective evaluation of students' funds of knowledge and patient care skills by the attending pediatric nephrology faculty. This course will be offered throughout the entire academic year.

Prerequisite: successful completion of any third year course which includes direct patient care

PED 751: Pediatrics, Child Abuse Pediatrics Elective

5 Credits/Maximum of 5

This course provides the student with an exposure to the assessment and management of children alleged to be abused or neglected, the manifestations of child abuse and neglect, and the interface between medicine and other agencies (Child Protection, law enforcement, and legal professionals).

Prerequisite: successful completion of the 3rd year clerkships

PED 755: Pediatric Adolescent/Young Adult Medicine Elective (4th year)

5 Credits/Maximum of 5

Students participate in the evaluation and treatment of a full range of primary care services to adolescents and young adults.

Prerequisite: completion of third-year core clerkships

PED 756: Adolescent Medicine Elective

4 Credits

Adolescent Medicine is a division in the department of Pediatrics. The Adolescent Medicine elective course will allow students four weeks to further immerse into the Adolescent Medicine subspecialty. Students will have the opportunity to directly care for adolescent patients (ages 10-24 years old) and learn about the multidisciplinary collaborative care approach utilized in the Adolescent Medicine division at Penn State Children's Hospital. Students will become familiar with the complex interdisciplinary medical care of the adolescent population. The course will allow students to experience many aspects of care offered by Adolescent Medicine clinicians for adolescent-specific health concerns, such as eating disorders, weight management, gender incongruence, menstrual abnormalities, sexual and reproductive health, and addiction medicine. Students will spend time at various levels of patient care,

including outpatient, inpatient, and partial hospitalization programs. Students will have the opportunity to assume ownership of patients, see patients independently with both direct and indirect supervision, and participate in medical decision making and medical documentation. Students will be expected to act professionally and learn about the importance of adolescent confidentiality. By the end of the 4-week elective, the students will be expected to present a journal club article that emphasizes a relevant topic in the field of Adolescent Medicine.

Successful completion of Phases I and II courses and clerkships

PED 765: Pediatric Neurology

5-10 Credits/Maximum of 10

Rounds, conferences, and clinics and experience in electroencephalography, electromyography, neuroradiology, neuro-ophthalmology, psychometric testing, and otolaryngology, as clinically appropriate.

Prerequisite: PED 700

PED 770: Pediatric Critical Care Medicine Acting Internship

6 Credits/Maximum of 6

The AI student should function with direct and indirect supervision to gather focused patient information during the history and physical exam in a time effective manner, and use critical thinking and advanced knowledge to guide judgement and medical decision making in a semi-autonomous fashion. Students will take primary responsibility and be accountable for patient care, management, follow up, and reassessment throughout all phases of clinical care from admission to discharge. The AI student will be expected to exemplify professional behavior, communication, and teamwork with patients and families, interprofessional care team members and interdisciplinary consultants at the level of a resident intern. Prioritization and timely coordination of patient care activities will be the responsibility of the AI student, including smooth and effective transfers of care, discharge planning, and necessary follow up. The AI student will also display appropriate team leadership and teaching activities when applicable. During this specific AI Course, students will be immersed within the specialty of Pediatric Critical Care Medicine, and will use advanced medical knowledge and practice during direct patient care in a collaborative and interprofessional manner.

Prerequisite: Successful completion of the pediatric core clerkship

PED 780: Pediatrics Acting Internship

6 Credits/Maximum of 6

Core Acting Internship rotations at Penn State emphasize students' active role on the team to ensure readiness for residency. In their role as acting interns, students on Core AI rotations will develop increasing proficiency and independence in developing plans of care, entering orders, preparing and performing patient handoffs, appropriately evaluating and responding to changes in patients' clinical conditions, and applying evidence-based care to patient management. During this specific AI Course, students will be immersed within the specialty of Inpatient Pediatrics and will use advanced medical knowledge and practice during direct patient care in a collaborative and interprofessional manner. The overall goal of this course is to learn how to take primary responsibility for the care of a hospitalized pediatric patient. AIs will

act as a self-directed learner in order to successfully become a more independent provider.

Prerequisite: Successful completion of the third year core clerkships

PED 796: Pediatric Individual Studies

5 Credits/Maximum of 5

Individually supervised creative projects, including basic or clinical pediatric research.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

PED 796A: Pediatric Individual Studies for 3rd Year Medical Students

2.5 Credits

Pediatrics Individual Studies for 3rd Year Medical Students.

Prerequisite: successful completion of one 3rd year core clerkship

PED 797: Pediatrics Special Topics

5 Credits/Maximum of 5

Basic or clinical electives in pediatrics at non-affiliated institutions.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for this course.

Physical Medicine and Rehabilitation (PMR)

PMR 730: Physical Medicine and Rehabilitation Elective (3rd and 4th year)

5 Credits/Maximum of 5

This elective is for 3rd and 4th year medical students interested in gaining experience in the field of Adult and Pediatric Physical Medicine and Rehabilitation, improving diagnostic skills related to the complications of disability, and improving neurologic and musculoskeletal examination skills.

Prerequisite: successful completion of the second year of medical school

PMR 740: Physical Medicine and Rehabilitation Acting Internship

5 Credits/Maximum of 15

The medical students will participate in PM&R evaluations, care for patients on the inpatient rehabilitation service, inpatient PM&R consult service and management of patients within the outpatient clinics. The course will allow the student to build on their physical examination and diagnostic skills through clinical participation, practice, and feedback provided by the attending physicians. They will actively participate in management discussion with interdisciplinary teams during their rotation.

Prerequisite: Successful completion of Phases I and II (and prefer additional completion of a general PMR elective).

Physician Assistant Studies (PAS)

PAS 700: Medical Ethics and Professionalism

1 Credits

This course provides an introduction to bioethics and professionalism and provides a framework for understanding ethical issues in medicine. This course is held during the Summer semester for students in the PA program. Active learning strategies will be employed in order to keep the student actively engaged in this educational process. Reflective thinking exercises will be utilized in order for the student to gain critical thinking skills in order to apply this knowledge to the clinical setting. The topics covered in the course are often difficult, not just intellectually but emotionally. While rigorous discussion and disagreement in the course of class discussions is anticipated, it is expected that students will engage in discussion with care and empathy for other members in the classroom. Students will be challenged to navigate course materials through the critical examination and assessment of basic assumptions and values that are vital to fulfilling authenticity in professional practice.

PAS 701: Applied Human Structure and Function I

3 Credits/Maximum of 3

This course is the first of a two-part series that provides students with a framework for understanding the gross anatomical concepts, organization, and function of the human body using a laboratory devoted to dissection of the human body.

PAS 702: Applied Human Structure and Function II

3 Credits/Maximum of 3

This course is the second of a two-part series that provides students with a framework for understanding the gross anatomical concepts, organization, and normal physiology/function of the human body using a laboratory devoted to dissection of the human body.

Prerequisite: PAS 701 , PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 717 , PAS 723

PAS 703: Applied Human Structure and Function III

2 Credits

Course will discuss the clinically relevant anatomy and structural information necessary for clinical practice emphasizing surface anatomy and surface markings. PAS 703 Applied Human Structure and Function III (2) Course covers the clinically relevant anatomy, structural information, underlying physiology, and clinical application necessary for preparing students for clinical practice emphasizing the relationship between anatomy and clinical disease. The practical application of anatomical information to clinical medicine is covered by using case studies via team-based learning in anatomy. Clinical problems requiring anatomical knowledge for their solution are presented during each case conference session. Lectures and laboratories cover the embryonic development of the human body and the relationship to structure and function. Cadaver dissection will be utilized to reinforce the position of these anatomy structures so that clinical relevance can be elicited. Course objectives: At the completion of this course, the student will be able to: - Describe the normal anatomy and physiology as it relates to the practice of medicine. - Use surface anatomy as the basis for the physical examination. - Identify normal and abnormal structures on dissection and discuss how alteration in human anatomy can impact health and

disease states. - Explain the relationship between anatomic structure and function and how this relates to health and disease. - Discuss the clinical relevance between anatomy and function. - Describe the relationship between clinical anatomy and its radiographic appearance. Methods of instruction will include: (1) lecture, (2) discussion, (3) demonstration, (4) audiovisual materials, (5) case studies, (6) dissection laboratories, (7) radiographic correlation. The audiovisual materials will be in the form of Primal Anatomy (Penn State has already purchased) and the Netter Anatomy Atlas (available via Harrell Library). Classes will be held in C1847 every Wednesday (1-5 pm) and Fridays (3-5 pm) with the anatomy dissection laboratory being utilized for two weeks during the semester. The dissection laboratory will occur from 8- 12 daily from Monday through Friday with the students from the College of Medicine. The students will be integrated with the medical students and these groups will rotate in the dissection laboratory, as assigned. The lecture-based instruction will take place in C1847 and will primarily consist of case-based instruction. The topics covered in this class will correspond to the topic areas in the clinical medicine integrated class, namely cardiology, pulmonary, oncology, general surgery. Evaluation strategies will include multiple choice examinations, practical laboratory examinations, and tests which involve the identification of structures and their function. This class is offered during the third semester (spring semester) of the Physician Assistant Program and will be offered yearly.

Prerequisite: PAS 706 , PAS 718 , PAS 712 , PAS 709 , PAS 715 , PAS 728

PAS 704: Clinical Medicine I

5 Credits

This is the cornerstone of all the medically relevant courses. Various disease processes will be described, along with the incidence, prevalence, pathophysiology, treatment plans, and expected outcomes.

Prerequisite: Pre-Clinical Graduate Physician Assistant Student qualified as a result of their admission to this program; Concurrent: PAS 701, PAS 707 , PAS 710 , PAS 713 , PAS 716 , PAS 720

PAS 705: Clinical Medicine II

5 Credits

This is the cornerstone of all the medically relevant courses. Various disease processes will be described, along with the incidence, prevalence, pathophysiology, treatment plans, and expected outcomes. PAS 705 Clinical Medicine II (5) This is the cornerstone of all the medically relevant courses. Various disease processes will be described, along with the incidence, prevalence, underlying causes, treatment plans, and expected outcomes. This course is organized into blocks covering infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. Grand Round presentations at the Hershey Medical Center may be used to supplement the topics in this class and will be assigned, as needed. The typical presentation for these disorders will be discussed along with a wide spectrum of the disease entity. With the integrated approach to this curriculum, deep discussion regarding the prevalence, signs and symptoms, initial evaluation strategies and clinical interventions; strategies will be discussed. Team-Based Learning and Critical Thinking Skill Development/Patient Communication discussion will be held throughout the semester in order to will support and reinforce the information provided in this class. This course is held during the second pre-clinical semester for students in the physician assistant program. Active learning strategies will be employed in order to keep the student actively engaged in this educational process. Reflective

thinking exercises will be utilized in order for the student to gain critical thinking skills in order to apply this knowledge to the clinical setting. At the conclusion of this course, the student will be able to identify, assess, evaluate, and provide clinical interventional strategies for patients who present with complaints related to the following systems: infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. Students successfully completing this course will also be able to demonstrate their interpersonal communication skills to their patients with regard to patient education for preventive and acute care strategies and for ongoing support for patients with chronic disease states. Evaluation methods will primarily consist of multiple choice examinations. These examinations are intended to allow students to demonstrate their ability to critically apply their knowledge for clinical case scenario questions and also to demonstrate their knowledge for these covered conditions. Although the test format will primarily be multiple choice questions, students should be aware that properly written questions can assess student knowledge in the following subject areas: most likely diagnosis, clinical intervention, ordering appropriate diagnostic studies, performing clinical therapeutics, applying scientific knowledge, recommending prevention and health maintenance strategies, and utilizing clues from the patient presentation, history and physical examination in order to pursue further diagnostic strategies.

Prerequisite: PAS 704 ' Pre-Clinical Graduate Physician Assistant Student qualified as a result of their admission to this program.; Concurrent: PAS 702, PAS 708 , PAS 711 , PAS 714 , PAS 717 , PAS 723

PAS 706: Clinical Medicine III

5 Credits

This is the cornerstone of all the medically relevant courses. Various disease processes will be described, along with the incidence, prevalence, pathophysiology, treatment plans, and expected outcomes. PAS 706 Clinical Medicine III (5) This is the cornerstone of all the medically relevant courses. Various disease processes will be described, along with the incidence, prevalence, underlying causes, treatment plans, and expected outcomes. This course is organized into blocks covering cardiology, pulmonary, hematology, and oncology. Grand Round presentations at the Hershey Medical Center may be used to supplement the topics in this class and will be assigned, as needed. The typical presentation for these disorders will be discussed along with a wide spectrum of the disease entity. With the integrated approach to this curriculum, deep discussion regarding the prevalence, signs and symptoms, initial evaluation strategies and clinical interventional; strategies will be discussed. Team-Based Learning and Critical Thinking Skill Development/Patient Communication discussion will be held throughout the semester in order to will support and reinforce the information provided in this class. This course is held during the second pre-clinical semester for students in the physician assistant program. Active learning strategies will be employed in order to keep the student actively engaged in this educational process. Reflective thinking exercises will be utilized in order for the student to gain critical thinking skills in order to apply this knowledge to the clinical setting. At the conclusion of this course, the student will be able to identify, assess, evaluate, and provide clinical interventional strategies for patients who present with complaints related to the following systems: cardiology, pulmonary, hematology, and oncology.. Students successfully completing this course will also be able to demonstrate their interpersonal communication skills to their patients with regard to patient education for preventive and acute care strategies and for ongoing support for patients with chronic disease states. Evaluation methods will

primarily consist of multiple choice examinations. These examinations are intended to allow students to demonstrate their ability to critically apply their knowledge for clinical case scenario questions and also to demonstrate their knowledge for these covered conditions. Although the test format will primarily be multiple choice questions, students should be aware that properly written questions can assess student knowledge in the following subject areas: most likely diagnosis, clinical intervention, ordering appropriate diagnostic studies, performing clinical therapeutics, applying scientific knowledge, recommending prevention and health maintenance strategies, and utilizing clues from the patient presentation, history and physical examination in order to pursue further diagnostic strategies.

Prerequisite: Pre-Clinical Graduate Physicina Assistant Student qualified as a result of their admission to this program; Concurrent: PAS 703, PAS 709 , PAS 712 , PAS 715 , PAS 718 , PAS 726

PAS 707: Pathophysiology I

2 Credits

This class provides a systems approach to basic concepts of disease processes which enables analysis for alterations to body systems.

Prerequisite: Preclinical student qualified for the Penn State Physician Assistant Program; Concurrent: PAS 701, PAS 704 , PAS 702 , PAS 710 , PAS 721 , PAS 714

PAS 708: Pathophysiology II

2 Credits

This class provides a systems approach to basic concepts of disease processes which enables analysis for alternations to body systems. PAS 708 Pathophysiology II (2) Class provides a systems approach to basic concepts of disease processes which enables analysis for alterations to body systems. Normal physiology will be discussed as part of the class but class emphasis is in the area of pathophysiology. Concepts are reviewed for the understanding that disease processes represent a disruption in homeostasis and a breakdown of normal integration of structure and function. Pathology regarding the following systems will be presented: infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. Special emphasis will be placed upon normal physiology and pathophysiologic processes that affect specific population subtypes. This is the cornerstone of all physiology and pathophysiology instruction utilized in the curriculum. Various disease processes will be described with discussion as to the underlying causes. Normal physiology will be discussed so that the learner can better grasp the outcomes of processes when normal physiology breaks down. This course is organized into blocks covering: infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. This course will be presented concurrently with physiology, pharmacology, and the clinical medicine approach to the course topics, as seen from the clinician's perspective. This integrative approach covering multiple elements of each of the conditions allows the student to gain an inclusive perspective to all of the covered entities. Other elements of the curriculum during this semester will be separately presented during the semester and these other courses will further support and enhance the topics covered in these sections. Instructional Objectives: At the conclusion of this course the student will: - Demonstrate the ability to formulate differential diagnosis and evaluation methods for patients who present with alterations in the normal physiologic processes for the following systems: infectious

disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. - Develop a plan for patients who present with complaints in the following systems: infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. - Describe the presentation, key findings, and underlying causes of both physiology and pathophysiology infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease. - Explain the importance and role of diagnostic interventions that are used for patients who present with diseases related to the following systems: infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease with the understanding of both normal and abnormal physiological processes. - Explain the underlying processes for the various diseases that are covered in the areas of infectious disease, neurology, dermatology, ophthalmology, otolaryngology, rheumatology, general surgery, and musculoskeletal disease.

Prerequisite: PAS 707 ; Preclinical student qualified for the Penn State Physician Assistant Program; Concurrent: PAS 702, PAS 705 , PAS 711 , PAS 714 , PAS 717 , PAS 723

PAS 709: Pathophysiology III

2 Credits

This class provides a systems approach to basic concepts of disease processes prior to analyzing common alterations to body systems. PAS 709 Pathophysiology III (2) This class provides a systems approach to basic concepts of disease processes prior to analyzing common alterations to body systems. Normal physiology components will be discussed as part of the class but the emphasis for this class is in the area of pathophysiology. Concepts are reviewed for the understanding that disease processes represent a disruption in homeostasis and a breakdown of normal integration of structure and function. Pathology regarding the following systems will be presented in detail: Cardiac and Pulmonary systems.

Prerequisite: PAS 715 and PAS 716 . Third semester graduate student in the Penn State PA program; Concurrent: PAS 703, PAS 706 , PAS 712 , PAS 715 , PAS 718 , PAS 726

PAS 710: Pharmacology I

2 Credits

This class will review the basic principles of drug action, their indications, contraindications, toxicities, and potential side effects.

Prerequisite: Preclinical student qualified for the Penn State Physician Assistant Program; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 713 , PAS 716 , PAS 720

PAS 711: Pharmacology II

2 Credits

This class will review the basic principles of drug action, indications, contraindications, toxicities, and potential adverse effects. PAS 711 Pharmacology II (2) This class provides instruction in the basic principles of drug action, drug indications, drug interaction, toxicities, and adverse drug effects, as taught from the perspective of the clinician prescriber. Students will be able to study the commonly used drugs affecting infectious disease, dermatologic disease, neurologic condition,

rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal condition. Indications for using first and second-line medications will be emphasized in this course along with the exclusions for using these medications in specific circumstances. Special emphasis is placed upon the use of medications in special populations (pregnancy, pediatric, geriatric) and how these conditions can affect drug metabolism. This is the cornerstone of pharmacology instruction in the curriculum. Various disease processes will be described along with pharmacologic management. This course is organized into blocks covering affecting infectious disease, dermatologic disease, neurologic condition, rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal conditions. This course is presented concurrently with physiology, pathophysiology, and the clinical medicine approach to the course topics, as seen from the prescriber's perspective. This integrative approach covers multiple perspectives for each of the conditions allowing the student to gain an overall perspective to these covered entities. Other elements of the curriculum will be separately presented during the semester and these other courses will further support and enhance the topics covered in these sections. Instructional Objectives: At the conclusion of this course the student will be able to: - Demonstrate the ability to develop a tiered treatment regimen for conditions relating to the affecting infectious disease, dermatologic disease, neurologic condition, rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal condition. - Describe the presentation, key findings, and underlying causes of both normal and abnormal disease processes in affecting infectious disease, dermatologic disease, neurologic condition, rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal condition which will entail personalized medicine and treatment plans. - Explain the importance and role of diagnostic interventions that are used for patients who present with diseases related to the affecting infectious disease, dermatologic disease, neurologic condition, rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal condition. - Explain the underlying processes for the various diseases regarding the affecting infectious disease, dermatologic disease, neurologic condition, rheumatologic condition, ophthalmologic condition, otolaryngologic condition, oral cavity, and musculoskeletal condition so that individual clinical therapeutic plans can be developed. Evaluation Methods: Traditional assessment methods will be utilized in this course (multiple choice, best-answer examinations). The learning goals of this class necessitate that core knowledge is assessed along with the student's ability to develop treatment regimen based upon clinical case scenario. This class will provide relevant, authentic case discussion for problems involving the gastroenterologic, renal/urologic, endocrine, and immune systems along with geriatric medicine.

Prerequisite: PAS 710 ; Preclinical student qualified for the Penn State Physician Assistant Program; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 714 , PAS 717 , PAS 723

PAS 712: Pharmacology III

2 Credits

This class will review the basic principles of drug action, their indications, contraindications, toxicities, and potential side effects. PAS 712 Pharmacology III (2) This class will review the basic principles of drug action, their indications, contraindications, toxicities, and potential side effects. Students will be able to study the commonly used drugs affecting the cardiac and pulmonary systems. Students will be expected to select the preferred medication in any given circumstance with regard to conditions affecting the cardiac and pulmonary systems. This class

will provide instruction from the perspective of the prescriber of the medication. Instruction will include therapeutic interventions that consist of more than just medications being delivered. Routes of administration of medication will also be discussed along with providing instruction as to how dosing can affect drug delivery and activity.

Prerequisite: PAS 710 and PAS 711 ; third semester graduate student in the Penn State Graduate Physician Assistant Program; Concurrent: PAS 703, PAS 706 , PAS 709 , PAS 715 , PAS 718 , PAS 726

PAS 713: Pharmacotherapeutics I

1 Credits

This course discusses the mechanism of action, medication classification, the indications, contraindications, and adverse events seen with medication use.

Prerequisite: First semester physician assistant student who is qualified for this course through the admission criteria for the PA program; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 710 , PAS 716 , PAS 720

PAS 714: Pharmacotherapeutics II

1 Credits

Course discusses the mechanism of action, the medication classification, the indications, contraindications, and adverse effects with the use of medications. PAS 714 Pharmacotherapeutics II (1) This course will discuss the mechanism of action, the classification system for medications, the indications, contraindications, and side effects with the use of medications in various systems. This course will discuss the various methods by which medications can be utilized and will highlight and explain why certain medications are considered to be the drug of choice for a given problem. Alternatives to medications may also be discussed in the management of various conditions. This course will also discuss costs of medications so that the graduate physician assistant student is taught pharmacotherapeutics from a cost-effective perspective. The subjects that will be emphasized during this course will be infectious disease, HEENT, neurology, rheumatology, behavioral medicine, and musculoskeletal medicine.

Prerequisite: Pharmacotherapeutics I; student enrolled in the pre-clinical curriculum of the Penn State Physician Assistant Program; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 717 , PAS 723

PAS 715: Pharmacotherapeutics III

1 Credits

This course will discuss the mechanism of action, the classification system for medications, the indications, contraindications, and side effects with the use of medications in various systems. PAS 715 Pharmacotherapeutics III (1) This course will discuss the mechanism of action, the classification system for medications, the indications, contraindications, and side effects with the use of medications in various systems. This course will discuss the various methods by which medications can be utilized and will highlight and explain why certain medications are considered to be the drug of choice for a given problem. Alternatives to medications may also be discussed in the management of various conditions. This course will also discuss costs of medications so that the graduate physician assistant student is taught pharmacotherapeutics from a cost-effective perspective. This course

will emphasize topic areas in the following systems: cardiac, pulmonary, hematologic, and oncologic systems.

Prerequisite: Pharmacotherapeutics I, Pharmacotherapeutics II; Graduate student in the third semester of the Penn State Physician Assistant Program; Concurrent: PAS 703, PAS 706 , PAS 709 , PAS 712 . PAS 718 , PAS 726

PAS 716: History and Physical Examination I

2 Credits

Techniques for eliciting a complete medical history, performance of a complete physical examination, and accurate recording in a patient record.

Prerequisite: First semester student in the physician assistant program who has been qualified for admission; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 710 , PAS 713

PAS 717: History and Physical Examination II

2 Credits

Students integrate the history and physical examination to perform an accurate evaluation of the patient while demonstrating appropriate interpersonal behaviors. PAS 717 History and Physical Examination II (2) A continuation of PAS 716, History and Physical Examination I. Students begin to integrate the results of history, physical and laboratory findings to arrive at an accurate evaluation of the patient so that the physician assistant and the supervising physician can determine the next appropriate diagnostic or therapeutic step. Course emphasis will be on interpersonal communication between the physician assistant student and the patient in a culturally competent and caring, empathetic manner. Students will gather patient information, organize this data, and arrive at differential diagnoses based upon the information that has been gathered for patients who present with complaints related to their musculoskeletal, ophthalmologic, otolaryngologic, dental, dermatologic, or neurologic system. This class will complement the topic areas that are covered during the integrated clinical medicine, pathophysiology, and pharmacologic courses. Students will be able to apply knowledge and progress in their knowledge from the topics presented in those other courses which are taught concurrently with the history and physical examination II course. Students will practice history and physical examination techniques in the history and physical examination laboratory and the clinical simulation laboratory. Simulated patients will be utilized for this course in order to assess the student's ability to professionally interact with these patients in a culturally competent and caring method.

Prerequisite: PAS 716 . Open to students enrolled in the physician assistant curriculum; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 723

PAS 718: History and Physical Examination III

2 Credits

Students perform and integrate the results of history, physical and laboratory findings to arrive at an accurate working diagnosis. PAS 718 History and Physical Examination III (2) A continuation of PAS 716 and PAS 717. Students begin to integrate the results of history, physical and laboratory findings to arrive at an accurate evaluation of the patient so that a working diagnosis can be established. Students will perform both directed and comprehensive histories and physical examinations and

prepare patient notes from these findings. Course emphasis will be on interpersonal communication between the physician assistant student and the patient in a culturally competent and caring, patient-centered empathetic manner. Students will gather patient information, organize this data, and arrive at differential diagnoses based upon the information that has been gathered for patients who present with complaints related to their cardiac and pulmonary systems. This class will complement the topic areas that are covered during the integrated clinical medicine, pathophysiology, and pharmacologic courses. Students will be able to apply knowledge and progress in their knowledge from the topics presented in those other courses which are taught concurrently with the history and physical examination II course. Students will practice history and physical examination techniques in the history and physical examination laboratory and the clinical simulation laboratory. Simulated patients will be utilized for this course in order to assess the student's ability to professionally interact with these patients in a culturally competent and caring method.

Prerequisite: PAS 716 , PAS 717 . Third semester student in the preclinical Penn State Physician Assistant Program; Concurrent: PAS 703, PAS 706 , PAS 709 , PAS 712 , PAS 715 , PAS 726

PAS 719: Evidence-Based Medicine

1 Credits

Course covers statistics, medical literature searches, formulating PICO (Population, Intervention, Comparison and Outcomes) questions and knowledge application in clinical practice. PAS 719 Evidence-Based Medicine (1) Evidence-based Medicine (PAS719) is a mandatory 14 week course given during the first year of the curriculum consisting of 14 two hour sessions. The course will be held on Fridays from 1-3 pm during the fall semester. Multiple learning environments will be utilized including didactic sessions, TBL, small group learning and standardized patient exercises. Students will be taught relevant statistics, how to utilize the medical literature, formulation of PICO (Population, Intervention, Comparison and Outcomes) questions and, most importantly, application of their knowledge at the point of care for patient care. Course faculty will be multi-disciplinary and include physicians and library staff who have taught such courses in the College of Medicine to medical students for a number of years. This course is intended to instruct the physician assistant student in how to find and interpret the medical literature. As a result of this course, students will be able to frame the clinical question, perform literature searches at the point of care, and be able to guide patients into making informed choices about their care based upon medical evidence. As a result of this course, students will be able to search for information regarding best practice of care and students will gain the ability to sift through what various clinical trials mean for translational medicine. Students will be provided opportunities to perform point of care evidence searches at the point of care during this class so that this skill can be translated to their clinical experiences as both a student in the clinical phase of the PA program and also as practicing physician assistants. Assessment methods will include practical experience in searching the medical literature, exercises with standardized patients with developing the clinical question and applying evidence-based medicine point of care techniques. Students will be detailed on the standards for passing this course on the course syllabi. Grading for this course will be from the instructors and peers taking this course. This course is a required course for physician assistant education, as determined by the national accrediting agency for physician assistants. Learning outcomes for each of the teaching sessions will be

provided to the student electronically through the academic management system such as Angel.

Prerequisite: completion of Summer semester; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 717

PAS 720: Pediatric Studies

1 Credits

This course will prepare students for their role in the evaluation and management of the pediatric population.

Prerequisite: Physician assistant student who meets the criteria for entry into the physician assistant program at Penn State College of Medicine PA program; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 710 , PAS 713 , PAS 716

PAS 721: US Health Care System/Legal Medicine

1 Credits

This course is intended to introduce the graduate physician assistant to the health care delivery system in the United States with reference to how the physician assistant profession fits into this system for providing accessible, comprehensive, and cost-effective care. This course will also cover the legal aspect involved with medical practice.

Prerequisite: First semester student in the preclinical phase of the Penn State Physician Assistant Program, having fulfilled all of the requirements for program entry.; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 710 , PAS 713 , PAS 71

PAS 722: Principles of Human Sexuality and Reproductive Health

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Human Sexuality and Reproductive Health course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of reproductive health diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

Prerequisite: Student admitted to the preclinical physician assistant program having fulfilled the requirements for admission to this program; Concurrent: PAS 701, PAS 704 , PAS 707 , PAS 710 , PAS 713 , PAS 716

PAS 723: Principles of Behavioral Medicine

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Behavioral Medicine course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology,

risk factors, clinical manifestations, diagnosis, treatment, and prevention of behavioral medicine conditions encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation

Prerequisite: Completion of Summer semester. Physician Assistant Student in the pre-clinical portion of the PA program.; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 717

PAS 724: Laboratory Interpretive Methods

1 Credits

The course will cover indications, contraindication, and interpretation of laboratory studies for evaluating or confirming clinical disease states. PAS 724 Laboratory Interpretive Methods (1) The course will cover common laboratory procedures employed in clinical practice. Discussion will take place which will allow the students to carefully select appropriate laboratory tests based upon clinical presentation of the patient along with the sensitivity and specificity of the tests themselves. Students will determine the appropriate indications and contraindications for ordering tests based primarily on evidence-based support for those tests. After the student gains insight into the appropriate ordering of these tests, the course instruction will emphasize the interpretation of these tests along with the ability to inform patients about what these test results mean for the patient. Students will gain an ability to provide rationale behind why tests are or are not indicated, based upon the clinical presentation of the patient. Students will develop proficiency in analyzing CBC, urinalysis, gram stains, and cultures. Students develop skills in interpreting clinical laboratory values in relation to disease, therapy, and prognosis. Topics include hematology, serology, clinical chemistry, and microbiology. The student will also gain experience in evaluating clinical laboratory cases. The emphasis of the course will be on the student being able to order appropriate clinical tests based upon the differential diagnosis of the clinical patient. This class, like many others in the curriculum, has the intention of enhancing student learning in order to taking care of patients and becoming a competent provider for patients who need our assistance. As part of our integrated curriculum, laboratory ordering and interpretation will help to close the loop for the various conditions that are discussed during the clinical medicine lecture series. Since this is a one semester course, laboratory studies will encompass the entire breadth of the clinical sections that will be covered in our longitudinal curriculum. This course will be offered every fall semester which is the second semester in the pre-clinical curriculum. Thirty students per semester will be enrolled in this class.

Prerequisite: Pre-Clinical Physician Assistant Student in the second semester of the PA program.; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 717

PAS 725: Physician Assistant Professional Practice

1 Credits

Students learn the history and the professional roles of the physician assistant profession plus licensing and requirements of this profession.

PAS 725 Physician Assistant Professional Practice (1) Students will learn the history of the PA profession, the roles of the PAs in current practice, and current issues facing the PA profession. In addition, students will become familiar with the professional standing and requirements for PA practice, where and how to locate professionally-relevant material, and the legal requirements related to the PA profession and medical practice, in general. Students will be provided with the basic information regarding licensure, credentialing, and certification requirements. Students will be provided information regarding the uniqueness of this profession among all of the other health professions. Employment opportunities and practice requirements will be discussed as part of this class. The role of the electronic medical record in today's healthcare delivery system will be discussed as well as demonstration of utilization of this electronic resource. Discussion will take place which will involve the emerging changes that are occurring within this profession. Debate will take place regarding the move toward specialty examinations in order to attain certificate of added qualifications. Students will be apprised of the new requirements for maintaining certification, namely the project improvement and self-assessment processes. This is a stand-alone course which is offered during the second semester of the preclinical phase of the PA program. Documentation on the electronic medical record will be discussed and this strategy will coincide with the history and physical examination courses which emphasize the collection of this patient-related data. Evaluation of the student will typically be by written examination. Testing methods will primarily be in the form of multiple choice questions based upon knowledge about this profession that the student will enter upon graduation. Students will be expected to demonstrate an appropriate level of knowledge which will be vital in obtaining licensure and certification following completion of this program. This course will be held in a lecture type of classroom in a large group discussion format. This course will be offered every summer semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort.

Prerequisite: Second semester student in the physician assistant program, having fulfilled all the requirements for the PA program.; Concurrent: PAS 702, PAS 705 , PAS 708 , PAS 711 , PAS 714 , PAS 717

PAS 726: Advanced Cardiac Life Support

1 Credits

Current methods and practices in advanced cardiac life support and emergency intervention will be discussed. PAS 726 Advanced Cardiac Life Support (1) Current methods and practices in advanced emergency intervention will be discussed. Topics include rapid patient assessment, CPR, intubation, intravenous and interosseus medication administration, application of an external pacemaker, use of an automated external defibrillator, and defibrillation protocols. Simulation will be utilized during the course and students will have ample time for practice. Arrangements for small group sessions can be made at the request of the student and the instructor. Megacode practice along with practice of various cardiovascular skills will be included as part of this class. Evaluation of the student will typically be by written and practical examination. Testing methods will primarily be in the form of multiple choice questions based upon clinically relevant and authentic case scenarios. Students will be expected to demonstrate an appropriate level of knowledge along with the ability to apply this knowledge in a clinical case scenario type of presentation. Students will need to demonstrate an ability to develop a differential and most likely diagnosis, use history and physical examination findings to make diagnoses and clinical decisions, identify clinical interventional strategies, perform clinical therapeutics, and apply

scientific knowledge in order to describe the underlying pathology for these various conditions. Students will also be given an opportunity to demonstrate actual practice of these clinical skills in the simulation laboratory. The clinical skills laboratory is also available to the students for additional practice 24 hours per day. Since this course requires hands-on practical application of care, this course will require demonstration of these techniques. This course will be held in a lecture type of classroom in a large group discussion format and also the clinical simulation laboratory. This course will be offered every summer semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort. The notes for this class will be fully available on ABLE. Various EKGs and pictures are part of the discussion and students will be given the opportunity to view these notes and pictures on ABLE since these pictures do not copy on handouts. Students should realize the cross-over of material between this course and the EKG interpretation course. Therefore, they should be very flexible in the Monday and Friday afternoon time frames for the purposes of integration of this material.

Prerequisite: Successful completion of first two semesters of the preclinical training. Basic life support is also a requirement for entrance into this course (student completed the basic life support requirement during the PA program orientat

PAS 727: Clinical Skills

2 Credits/Maximum of 2

This course will develop skills in performing routine therapeutic procedures to treat common disease entities. PAS 727 Clinical Skills (1) This course will develop skills in performing routine therapeutic procedures to treat common disease entities. It will include discussion of indications, contraindications, and complications of the various procedures. This course will discuss aseptic techniques, communication skills to be utilized when performing procedures on patients, and the need for obtaining informed consent and how to perform an appropriate "time out" before performing the procedure. The format will be a combination of lecture, demonstration of skills, discussion of procedures, and student practice of skills. Evaluation of the student will typically be by written and practical examination. Testing methods will primarily be in the form of multiple choice questions based upon clinically relevant and authentic case scenarios. Students will be expected to demonstrate an appropriate level of knowledge along with the ability to apply this knowledge in a clinical case scenario type of presentation. Students will need to demonstrate the hands-on care for performing procedures that are expected of clinically practicing physician assistant students. This course will be held in a lecture type of classroom in a large group discussion format. This course will be offered every summer semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort.

Concurrent: PAS 701, 702, 704, 707, 710, 713, 716, 724, 727

PAS 728: EKG Interpretive Methods

1 Credits

This course is a study of electrocardiographic (EKG) interpretation that may be used as part of the diagnostic evaluation process. PAS 728 EKG Interpretive Methods (1) This course is a study of electrocardiographic (EKG) interpretation that may be used to diagnose common pathologies, confirm diagnoses, and screen for the presence of abnormalities. This course is not all-inclusive, but rather, is an introduction to the art of

the interpretation of EKG. We will differentiate between normal and abnormal diagnostic studies, and discuss the process of interpreting and evaluating common abnormalities and disorders. Topics include the elements of basic EKG and x-ray interpretation. For the EKG component, this includes rate, rhythm and axis determination, the recognition of arrhythmias and conduction abnormalities, and the changes seen with myocardial ischemia and infarction. There will be a clear connection between the EKG findings and the clinical presentation for these findings. EKG must always be interpreted in light of the patient's clinical presentation and this adage will be emphasized as part of this class. Evaluation of the student will typically be by written examination and actual interpretation of both rhythm strips and 12-lead EKGs. Testing methods will primarily be in the form of multiple choice questions based upon clinically relevant and authentic case scenarios. Students will be expected to demonstrate an appropriate level of knowledge along with the ability to apply this knowledge in a clinical case scenario type of presentation. Students will be asked specific questions on these EKGs and full interpretation of these electrocardiograms will also be included as part of this assessment. This course will be held in a lecture type of classroom in a large group discussion format. There will be ample time for EKG discussion based upon the clinical scenarios of the patients with these findings. This course will be offered every summer semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort.

Prerequisite: Completion of the summer and fall preclinical semesters in the physician assistant program.; Concurrent: PAS 703, PAS 706, PAS 709, PAS 712, PAS 715, PAS 718

PAS 729: Principles of Emergency Medicine

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Emergency Medicine course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of emergent medical and traumatic conditions encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in emergency medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

Prerequisite: completion of Summer and Fall semesters; Concurrent: PAS 703, PAS 706, PAS 709, PAS 712, PAS 715, PAS 718

PAS 730: PA Fundamentals of Health Humanities

1 Credits/Maximum of 1

The PA Fundamentals of Health Humanities course focuses on issues of pressing social interest, including structural inequities like racism and discrimination in medicine, justice, and unconscious bias. The course also introduces learners to important humanities skills (close reading) and knowledge (ethical principles, conceptions of trust). A primary conceptual framework that guides health care ethics is the social

construction of reality. Our worlds are both biologically and socially constructed. Biological construction addresses how our bodies work as organisms, why we are healthy or sick, and how to treat illness so that we can become well. Social construction addresses the social worlds, values, and stories that we create to sustain ourselves as individuals, families, and communities. The social construction framework explains the way our minds perceive reality and shape it. If we understand how our realities are constructed, we can find ways to change those realities that are harmful-either by creating biochemical treatments to fight disease or to identify and then alter behaviors that lead to discriminatory practices. Medicine as a profession engages both biological and social construction. We know that certain elements of our social worlds-racism, for example-biologically affect the health of those who are discriminated against. This is one element of the stress response. But the social world, a world of organizations, values, stories, and traditions, is just as important in treating people and making them well as health care ethics and other elements combined to engage the world.

Concurrent: PAS 736 Introductory Concepts in Medicine, PAS 763 Principles of Immunology, Hematology and Oncology, PAS 784 Principles of Dermatology, PAS 785 Principles of Infectious Disease, PAS 786 Principles of Ophthalmology and Otolaryngology

PAS 731: Radiology Interpretive Methods

1 Credits

This course prepares students for ordering and interpreting radiographic images used to diagnose common pathologies, confirm diagnoses, and perform screenings. PAS 731 Radiology Interpretive Methods (1) This course prepares graduate physician assistant students for ordering and interpreting radiographic (x-ray) images that are used to diagnose common pathologies, confirm diagnoses, and screen for the presence of abnormalities. This course is not all-inclusive, but rather, is an introduction to the art of the interpretation of the x-ray. We will differentiate between normal and abnormal diagnostic studies, and discuss the process of interpreting and evaluating common abnormalities and disorders. There will be an overview of basic organ systems with the following considerations: technical (choice of imaging techniques available), anatomic (review of basic landmarks), and common pathophysiologic alterations (how are these directly and/or indirectly found).

Prerequisite: Third semester pre-clinical student in the Penn State PA program. Third course in the interpretive sequence.; **Concurrent:** PAS 703, PAS 706 , PAS 709 , PAS 712 , PAS 715 , PAS 718

PAS 732: Emergency Medicine Rotation I

5 Credits/Maximum of 5

PAS 732 Emergency Medicine is a mandatory clinical rotation, which involves the evaluation and management of patients who present for care in an emergency medicine setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients with an acute life-threatening event. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in an emergency medicine setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how

emergency medicine departments function in the overall delivery of health care services within the US Health care delivery system. Students will be able to apply knowledge and skills from the pre-clinical curriculum to these patients who often have complex and urgent health care needs. Students will also gain exposure to the patient care mix for people who are presenting to an emergency medicine setting and may gain exposure to the typical roles that certified physician assistants play in the delivery of care in this setting.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; **Concurrent:** The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 733: Emergency Medicine II Elective

5 Credits/Maximum of 5

Emergency Medicine II (PAS 733) is an elective clinical rotation which involves the evaluation and management of patients who present for care in an emergency medicine setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients with an acute life-threatening event. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in an emergency medicine setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how emergency medicine departments function in the overall delivery of health care services within the US Health care delivery system. Students will be able to apply knowledge and skills from the pre-clinical curriculum to these patients who often have complex and urgent health care needs. Students will also gain exposure to the patient care mix for people who are presenting to an emergency medicine setting and may gain exposure to the typical roles that certified physician assistants play in the delivery of care in this setting.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. Successful completion of PAS 732.; **Concurrent:** The student will be enrolled in three clinical preceptorships during each of the clinica

PAS 734: Family Medicine Rotation I

5 Credits/Maximum of 5

PAS 734 Family Medicine Rotation I is a foundational course for primary care practice. This course will provide the basis for establishing care of patients throughout their lifespan, from newborn to geriatric care. This rotation involves outpatient management, evaluation, examination of patients and involves students developing differential diagnoses, clinical intervention, the ordering and/or interpretation of diagnostic studies, and development of a treatment plan which is based upon the patient's presenting complaint and current and past problems. Students will make recommendations for treatment involving pharmacology intervention based upon standard of care principles. Students will obtain histories on these patients, perform directed and complete physical examinations, and will present these findings to the clinical preceptors at the site. Students will gain experience with documenting their findings in both written and verbal communication to their preceptors. Students will

develop rapport with their patients and develop their skills in patient communication, cultural competency, and patient education.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. This rotation is offered under the umbrella of primary care experiences and is a hallmark for the educational goals for our PA Program

PAS 735: Ambulatory Care Selective

5 Credits/Maximum of 5

The core of clinical experiences for this rotation will occur in an ambulatory care setting for patients who present for the evaluation of acute, subacute, and chronic conditions to healthcare providers. Students should be expected to be able to initially evaluate the patient, perform wellness screens for all patient entities, and develop an evaluation and treatment plan based upon the differential diagnosis that is developed. The student will then discuss the patient's complaints and findings with the supervising licensed health care provider and a treatment plan will be developed. The student should become adapt in patient presentation skills, obtaining a pertinent history and physical, and develop a management plan. The student should then communicate to the patient the most likely diagnosis and educate the patient with regard to prevention and treatment modalities.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. This rotation is offered under the umbrella of primary care experiences and is a hallmark for the educational goals for our PA Program

PAS 736: Introductory Concepts in Medicine

2 Credits

This course includes a variety of introductory concepts necessary for further study within the PA program; including the history and development of the physician assistant profession, medical terminology, pharmacokinetics, pharmacodynamics, pharmacogenetics, basics of prescription writing and medical dose calculations, HIPAA, OSHA, informed consent, and PA prescribing privileges. Students will discuss the basics of laboratory medicine; including sensitivity and specificity, precision and accuracy, negative and positive predictive value, screening and confirmatory tests, reference range, therapeutic range, therapeutic index. Students will also assess general vital signs and discuss normal and abnormal growth and development. Through this course, students will develop the skills necessary to build rapport and establish a patient-provider relationship, perform a basic medical history, and learn about general medical documentation requirements.

PAS 737: General Surgery Rotation I

5 Credits/Maximum of 5

PAS 737 General Surgery is a mandatory clinical rotation that will provide students with the requisite knowledge and clinical experiences for treating patients in the surgical setting. Prepares physician assistant students to function in all aspects of surgical medicine. Students are introduced to surgical disorders commonly encountered in various settings by the physician assistant. Students gain familiarity with preoperative and postoperative patient care, assisting in the operating room, performing exams and surgical procedures. Students develop medical, technical and interpersonal skills to provide care to surgical patients as well as communicate with patients, family members and other members of the health care team. Requires direct supervision

by clinical instructors. Emphasis will be placed on initial assessment, physical examination, and perioperative evaluations). When appropriate, the student follows individual patients whose cases are particularly instructive.

PAS 738: General Surgery Rotation II

4 Credits

PAS 738 is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a surgical complaint or a patient who is treated in the surgical setting. Students will assist in the operating room and will perform history and physical examinations and surgical consults for patients with a potential surgical complaint. Students will be part of the preoperative planning for a patient about to undergo surgery which includes the identification of indications and contraindications for a patient about to undergo surgery. Students will also play a role in the postoperative management of patients who have undergone surgery. These exposures that the students have during this rotation will prepare them for their clinical role in taking care of patients throughout their lifespan in various types of clinical settings which includes the care of surgical patients and operative interventions.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 739: Inpatient Internal Medicine Rotation I

5 Credits/Maximum of 5

PAS 739 Inpatient Internal Medicine is mandatory inpatient clinical rotation, which provides clinical education for students taking care of the adult population. The ultimate goal for students at the end of the clinical educational training is to have students capable of caring for patients throughout their lifespan and this rotational experience provides the student with educational experiences for the adult population which includes the geriatric population. During this rotation each student will also receive a site visit from the Clinical Coordinator.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 740: Internal Medicine Rotation II

4 Credits

This second internal medicine clinical rotation provides clinical education for students taking care of the adult population. This course is a natural extension of the first internal medicine course, PAS 739. The ultimate goal for students at the end of the clinical educational training is to have students capable of caring for patients throughout their lifespan and this rotational experience provides the student with educational experiences for the adult population which includes the geriatric population. Goals for this rotation include having the student identify, describe and perform the appropriate clinical evaluation including performance of a physical examination, the development of differential diagnosis, the selection of appropriate diagnostic studies, the development of treatment plans including proper referrals, and performing patient education. Students will gain proficiency in performing oral case presentations and documenting

history and physical examination findings. Students will also gain experience with writing admission and hospital orders and discharge summaries, as appropriate according to the setting. The student will gain experience identifying normal and abnormal laboratory values as well as the appropriate use of radiologic and other diagnostic modalities as part of the diagnostic evaluation of the patient.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. This is the second course in the primary care sequence. This course will occur following the completion of the first internal medicine

PAS 741: Behavioral Health Rotation I

5 Credits/Maximum of 5

PAS 741 Behavioral Health Rotation is a mandatory clinical rotation in the clinical curriculum. This course and rotation provides clinical experiences for students in inpatient and outpatient settings where the student will encounter patients with a mental health or psychological complaint.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 742: Mental Health Rotation II

4 Credits

PAS 742 Mental Health Rotation II is an elective course in the clinical curriculum. This course and rotation provides clinical experiences for students in inpatient and outpatient settings where the student will encounter patients with a mental health or psychological complaint. Students will become acquainted with manifestations of various forms of psychopathology. The emphasis of this course is the performance of a complete psychiatric examination which includes the performance of a mental state examination. Students will develop the ability to classify patients with a psychiatric complaint according to the Axis classification. Students will develop the ability to manage psychosocial problems that the patients face along with the ability to navigate the health care system and get these patients much-needed support in the community. This clinical experience integrates previous learning and actual clinical practice, while working on hospital wards and outpatient clinics. It emphasizes the behavioral and psychosocial aspects of mental illness. Students will be able to apply what was learned in the preclinical educational curriculum during the behavioral medicine course with the actual practice which deals with caring for patients with a mental health or psychosocial complaint. Students will be given patient navigation experience from both a specialty and primary care perspective and will gain an appreciation as to how emotional stress and mental illness can impact the entire patient and not just the brain of the patient. Students will educate patients and their families on the psychosocial elements and physiologic processes that occur in the setting of psychiatric disease. This course meets the overall program goal of addressing psychosocial needs of our patients in various settings and with various complaints throughout the lifespan.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 743: Pediatrics I

5 Credits/Maximum of 5

PAS 743 Pediatrics is a mandatory clinical rotation that will cover the basic principles of preventive care ranging from neonate to adolescent and treat common pediatric complaints. At the end of this rotation PA student should be able to identify normal and abnormal development patterns in all of these age groups. Students will gain the ability to provide anticipatory guidance in order to care for neonates to adolescents. Care delivery will include nutrition, safety and immunizations. Students will be trained to detect signs of possible child abuse. Students will be able to identify and demonstrate an understanding of community resources available to the caregiver.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 744: Pediatrics II Elective

5 Credits/Maximum of 5

PAS 744 is an elective clinical rotation that will cover the basic principles of preventive care ranging from neonate to adolescent. Be able to identify normal and abnormal development patterns in all of these age groups. Students will gain the ability to provide anticipatory guidance and teaching in order to care for neonates to adolescents. Care delivery will include nutrition, accident prevention and immunization. Students will be trained to detect signs of possible child abuse. Students will be able to identify and demonstrate an understanding of community resources available to the caregiver.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 745: Reproductive Health I

5 Credits/Maximum of 5

PAS 745 Women's Health Rotation is a mandatory clinical rotation that will prepare students to provide high quality care while treating the female population from the teenage patient through the geriatric female. Students will develop the ability to evaluate, manage, treat, and educate the female patient, including the areas of contraception, pregnancy, prenatal and postpartum care, and menopause. The student will utilize critical thinking, history taking and physical exam skills, and use diagnostic tests, as appropriate, in order to effectively create a plan of care for the female patient. The student will perform or assist in procedures utilized in women's health. Students will communicate with women in a respectful and sensitive manner. Requires direct supervision by clinical instructors.

PAS 746: Women's Health II Elective

5 Credits/Maximum of 5

PAS 746 Women's Health Rotation is an elective 5 week clinical rotation that will provide students with experience in assessing, examining, evaluating, and treating the female population from the teenage population through the geriatric female.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters. Since stud

PAS 747: Internal Medicine III Rotation

4 Credits

This third internal medicine clinical rotation provides clinical education for students taking care of the adult population. This course is a natural extension of the first two internal medicine courses, PAS 739 and PAS 740. This course is available for the students to take as an elective course. This elective course is directed at students who wish to pursue career training in the primary care sector. The ultimate goal for students at the end of the clinical educational training is to have students capable of caring for patients throughout their lifespan and this rotational experience provides the student with educational experiences for the adult population which includes the geriatric population. Goals for this rotation include having the student identify, describe and perform the appropriate clinical evaluation including performance of a physical examination, the development of differential diagnosis, the selection of appropriate diagnostic studies, the development of treatment plans including proper referrals, and performing patient education. Students will gain proficiency in performing oral case presentations and documenting history and physical examination findings. Students will also gain experience with writing admission and hospital orders and discharge summaries, as appropriate according to the setting. The student will gain experience identifying normal and abnormal laboratory values as well as the appropriate use of radiologic and other diagnostic modalities as part of the diagnostic evaluation of the patient.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. This is the second course in the primary care sequence. This course will occur following the completion of the first two internal medi

PAS 748: Family Medicine III Elective

5 Credits/Maximum of 5

Family Medicine Rotations (PAS 748) is an elective rotation which will consist of outpatient evaluation of patients of all ages from newborn to geriatric. These patients will present with acute, subacute, and chronic conditions to the primary care provider. The student will gain experience in seeing patients from different demographics who will have a wide range of presentations and complaints. The majority of the clinical experiences will occur in an ambulatory setting, either outpatient or urgent care. Students are expected to be able to initially evaluate the patient, perform wellness screens for all patient entities, and develop an evaluation and treatment plan based upon the differential diagnosis that is developed. The student will then discuss the patient's complaints and findings with the supervising licensed health care provider and a treatment plan will be developed. The student should become adept in patient presentation skills, obtaining a pertinent history and physical, and develop a management plan. The student should then communicate to the patient the patient's most likely diagnosis and educate the patient with regard to prevention and treatment modalities. The family medicine rotation should provide experiences in ordering laboratory tests, imaging, and electrocardiograms with the interpretation of these findings also being an expected competency for this rotation.

Prerequisite: Penn State Graduate Physicina Assistant Student enrolled in the Clinical Education Curriculum. This rotation is offered under

the umbrella of primary care experiences and is a hallmark for the educational goals for our PA Program

PAS 749: Endocrinology I Elective

5 Credits/Maximum of 5

PAS 749, Endocrinology is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with an endocrinology complaint or a patient who is treated in the endocrinology setting. Students may assist in the endocrinology suite and will perform history and physical examinations and medical consultations for patients with an endocrinology complaint. Students may be part of the preoperative planning for a patient about to undergo surgery which includes the identification of indications and contraindications for a patient about to undergo surgery. Students may also play a role in the postoperative management of patients who have undergone surgery who have high endocrinology risk or endocrinology complications. These exposures that the students have during this rotation will prepare them for their clinical role in taking care of patients throughout their lifespan in various types of clinical settings which includes the care of the patient with an endocrinology complaint or complication.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 750: Gastroenterology I Elective

5 Credits/Maximum of 5

PAS 750 Gastroenterology is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a GI complaint. This rotation will provide students with an opportunity to evaluate, exam, manage, and educate patients who have a complaint related to their gastroenterology/hepatology system. The student will gain experience in the management of patients with gastroenterologic disease on an acute and chronic basis. Patients may be evaluated in both an inpatient and/or outpatient setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 751: Ear, Nose and Throat Elective Rotation

5 Credits/Maximum of 5

PAS 751 ENT is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with an ears, nose or throat complaint for a patient in the otorhinolaryngology setting. Students may assist with procedures and will perform history and physical examinations and medical consultations for patients with ears, nose and throat related complaints. Students may be part of the pre-treatment planning for a patient who requires surgery which includes the identification of indications and contraindications for a patient about to undergo surgery. Students may also play a role in the post treatment management of patients who have undergone ear, nose and throat related treatments. The exposures that the students have during this rotation will prepare them for their clinical role in taking care of patients throughout their lifespan in various types of clinical settings, which includes the care of the patient in the otorhinolaryngology setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 752: Hematology & Oncology Elective Rotation

5 Credits/Maximum of 5

PAS 752 Hematology Oncology is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a hematological or oncological complaint and for a patient who is treated in the hematology and oncology setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 753: Orthopedics & Sports Medicine I Elective

5 Credits/Maximum of 5

PAS 753 Orthopedics I is an elective rotation offered in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students a five-week elective in Orthopedics. This course will assist in preparing the student to care for patients with a musculoskeletal complaint or a patient who is treated in the orthopedic setting. Students during this rotation may expect to evaluate and treat patients in both the outpatient clinical setting as well as inpatient, operating room and potentially the Emergency Department for consultations as needed.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 754: Trauma I Elective

5 Credits/Maximum of 5

PAS 754 Trauma is an elective course in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with an opportunity to evaluate and manage patients who present for care in a trauma setting. Students will gain experience in their ability to evaluate, examine, manage, and educate patients who have a complaint related to a traumatic injury.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 755: Dermatology Elective

5 Credits/Maximum of 5

PAS 755 Dermatology is an elective course which involves the evaluation and management of patients who present for care in a dermatologic setting. Students will gain experience in their ability to evaluate, examine, manage, and educate patients who have a complaint related to the integumentary system. Students will gain proficiency in identifying patients with clinical presentations of lesions that may need more immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how dermatologic practices function in the overall delivery of health care services within the US Health care delivery system.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 756: Summative Experience

1 Credits

This course is a capstone course that will provide the final comprehensive assessment for students prior to graduation.

Prerequisite: Penn State Graduate Physican Assistant Student enrolled in the Clinical Education Curriculum; Concurrent: The student will ordinarily have completed both the pre-clinical and clinical training in the PA program with this class pro

PAS 757: Interventional Radiology Elective

5 Credits/Maximum of 5

PAS 757 Interventional Radiology is an elective course which involves the evaluation and management of patients who present for care in an interventional radiologic setting. Students will gain experience in their ability to evaluate, and manage patients in Interventional Radiology. Students will gain an appreciation of how care is delivered in an Interventional Radiology setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 758: Cardiology Elective

5 Credits/Maximum of 5

PAS 758 Cardiology is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with an opportunity to evaluate, exam, manage, and educate patients who have a complaint related to their cardiovascular system. The student will gain experience in the management of patients with cardiovascular disease on an acute and chronic basis. Patients may be evaluated in both an inpatient and/or outpatient setting.

PAS 759: Plastic and Reconstructive Surgery I Elective

5 Credits/Maximum of 5

PAS 759 Plastic and Reconstructive Surgery is a 4 week elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a plastic and reconstructive surgery complaint treated in the plastic and reconstructive surgery setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 760: Cardiothoracic Surgery I Elective

5 Credits/Maximum of 5

PAS 760 Cardiothoracic (CT) Surgery I is an optional course offered as an elective Cardiothoracic (CT) Surgery rotation which involves the evaluation and management of patients who present for care in a Cardiothoracic (CT) Surgery setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients in a Cardiothoracic (CT) Surgery setting. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in a Cardiothoracic (CT) Surgery setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how Cardiothoracic (CT) Surgery departments function in the overall delivery of health care services within the US Health care delivery system. Students will be able to apply knowledge and skills from the pre-clinical curriculum to these patients who often have complex and urgent health care needs. Students will also gain exposure to the patient

care mix for people who are presenting to a Cardiothoracic (CT) Surgery setting and may gain exposure to the typical roles that certified physician assistants play in the delivery of care in this setting.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. **CONCURRENT:** The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters.

PAS 761: Neurology Elective

5 Credits/Maximum of 5

PAS 761 Neurology is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a neurology complaint for a patient who is treated in the neurology setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 762: Critical Care Medicine I Elective

5 Credits/Maximum of 5

PAS 762 Critical Care Medicine I is as an elective rotation which involves the evaluation and management of patients who present for care in a Critical Care Medicine setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients in a Critical Care Medicine setting. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in a Critical Care Medicine setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how Critical Care Medicine departments function in the overall delivery of health care services within the US Health care delivery system.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. **CONCURRENT:** The student will be enrolled in three clinical preceptorships during each of the clinical educational semesters.

PAS 763: Principles of Immunology, Hematology and Oncology

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Immunology, Hematology, and Oncology course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of immunologic, hematologic, and oncologic diseases encountered in patients across the lifespan. The immunology portion of the course includes education on the various immune system cell types and their important functions in innate and adaptive immunity. Congenital and acquired immunodeficiency syndromes will be taught in contrast to normal immune system function. Additionally, hypersensitivity reactions and common allergic conditions will be discussed. The hematology section of the course covers the basic principles of hematology; including the structure and function of the cells and organs related to the hematologic system, while exploring

the features of hematological diseases. The oncology section of the course covers the general principles of oncology; including the origin, development, staging, and treatment of tumors. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 764: Palliative Medicine I Elective

5 Credits/Maximum of 5

PAS 764 Palliative Medicine is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with an opportunity which involves the evaluation and management of patients who present for care in a Palliative Medicine setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients in a Palliative Medicine setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 765: Burn Care Elective Rotation

5 Credits/Maximum of 5

PAS 765 is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a burn injury or specific skin condition. Students may assist in the operating room and will perform history and physical examinations and medical consultations for patients with burn injuries. Students may be part of the preoperative planning for a patient about to undergo surgery which includes the identification of indications and contraindications for a patient about to undergo surgery. Students may also play a role in the postoperative management of patients who have undergone surgery.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 766: Urgent Care I Rotation

5 Credits/Maximum of 5

PAS 766 Urgent care I is an optional course that falls under the ambulatory care rotation which involves the evaluation and management of patients who present for care in an urgent care setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients in an urgent care setting. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in an urgent care setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how urgent care departments function in the overall delivery of health care services within the US Health care delivery system. Students will be able to apply knowledge and skills from the pre-clinical curriculum to these patients who often have complex and urgent health care needs. Students will also

gain exposure to the patient care mix for people who are presenting to an urgent care setting and may gain exposure to the typical roles that certified physician assistants play in the delivery of care in this setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 767: Urgent Care II Elective Rotation

4 Credits

PAS 767 Urgent Care II is as an elective rotation which involves the evaluation and management of patients who present for care in an Urgent Care setting. Students will gain experience in their ability to stabilize, evaluate, and manage patients in a Urgent Care setting. Students will gain proficiency in identifying patients with clinical presentations that need immediate attention and those conditions which can be treated in a less urgent manner. Students will gain an appreciation of how care is delivered in an Urgent Care setting which has significant differences from the care that is rendered in other health care settings, for example, the immediate availability of clinical interventions such as diagnostic imaging, electrocardiography, laboratory studies, and the availability of consultants such as surgeons and trauma personnel. Students will gain an appreciation of how Urgent Care departments function in the overall delivery of health care services within the US Health care delivery system. Students will be able to apply knowledge and skills from the pre-clinical curriculum to these patients who often have complex and urgent health care needs. Students will also gain exposure to the patient care mix for people who are presenting to an Urgent Care setting and may gain exposure to the typical roles that certified physician assistants play in the delivery of care in this setting.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 768: Infectious Disease Elective

5 Credits/Maximum of 5

PAS 768 is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with an infectious disease complaint.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. Concurrent: Each clinical rotation is 4 weeks in length and worth 4 credits.

PAS 769: Neurosurgery I Elective

5 Credits/Maximum of 5

PAS 769 is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a neurology complaint who referred for treatment in the neurosurgery setting. Students may assist with procedures and will perform history and physical examinations and medical consultations for patients with a neurosurgery related complaint. Students may be part of the pre-treatment planning for a patient about to undergo neurosurgery which includes the identification of indications and contraindications for a patient with a neurological condition. Students may also play a role in the post treatment management of patients who have undergone related surgical procedures. The exposures that the students have during this rotation will prepare them for their clinical role in taking care of patients throughout their lifespan in various types of clinical and surgical

settings which includes the care of the patient with a neurological related complaint that may require surgical intervention.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 770: Nephrology Elective

5 Credits/Maximum of 5

PAS 770 is an elective rotation in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students with the requisite knowledge and clinical experiences for preparing the student to care for patients with a nephrology complaint.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 771: Critical Thinking and Reasoning

1 Credits/Maximum of 1

This course provides meaningful discussion of common patient presentations in various clinical settings. Students will apply critical thinking and reasoning skills in developing evaluation strategies, differential diagnoses, treatment plans, and patient education strategies based upon patient presentations in each scenario. With student group discussions facilitated by faculty, students can adjust their thought processes based upon further case scenario information that is presented as the case evolves. Course will be four week in length with group meetings taking place in at least three of those four weeks. Students will also independently work through selected case scenarios that are written in order to develop critical thinking and reasoning. As students progress through these cases, they will address bias and premature closure. Course is an elective which students can take in both the preclinical and clinical portions of the PA curriculum. Course is offered on a pass/fail basis.

Prerequisite(s): Completion of Preclinical curriculum courses

PAS 772: Topics in At-Risk Populations

1 Credits

The focus of this Topics course is designed to highlight healthcare needs of a variety of at risk populations including detecting and reporting child and elderly abuse and Act 31 certification, opioid use disorders and opioid training certification, Medications for Addiction Treatment certification, stroke detection and NIHSS Group B certification. The course will also include current public health initiatives and humanities in medicine topics.

PAS 773: Career Exploration and Synthesis I

1-2 Credits/Maximum of 2

PAS 773 Career Exploration and Synthesis I will be completed by all clinical year physician assistant students during their first or second semester of the clinical phase. Each selective is a clinical experience in a medical or surgical discipline of their choice. Students will explore various career options, extend clinical experiences and synthesize material they have learned, and allow for individualization of learning in the rotations. This course is designed to provide students a brief experience in a subspecialty of their choice to further knowledge and technical skills. This course will help students in their professional role development, as they will be exposed to a select area briefly, yet in depth. Each of these experiences will be unique.

PAS 774: Career Exploration and Synthesis II

1-2 Credits/Maximum of 2

PAS 774 Career Exploration and Synthesis II will be completed by all clinical year students during the third semester of the clinical phase. Each selective is a clinical experience in a medical or surgical discipline of their choice. Students will explore various career options, extend clinical experiences and synthesize material they have learned, and allow for individualization of learning in the rotations. This course is designed to provide students a brief experience in a subspecialty of their choice to further knowledge and technical skills. This course will help students in their professional role development, as they will be exposed to a select area briefly, yet in depth. Each of these experiences will be unique.

PAS 776: Medicine Specialty Rotation

5 Credits/Maximum of 5

The goal of this elective rotation is to give the student additional medical training during the clinical year in a specialty related to their area of interest. During this rotation, the student will develop a fundamental knowledge base in major disease processes in the assigned medical specialty. They will improve upon their clinical decision-making skills and the ability to acquire, interpret, synthesize, and record clinical information required to define, understand, and manage patient problems in the assigned medical specialty. They will improve the skills necessary to present patients to faculty, residents and peers in a clinical setting. In addition, student will continue to work on their interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates. This elective will allow for student exposure to different areas of medicine they may wish to pursue following graduation, and help each student determine their own areas of interest, strengths and weaknesses.

Prerequisite: Penn State Physician Assistant Student in Clinical Education Curriculum. Concurrent: The student will be enrolled in clinical preceptorships during each of the clinical educational semesters.

PAS 777: Surgical Specialty Rotation

5 Credits/Maximum of 5

The goal of this elective rotation is to give the student additional medical training during the clinical year in a surgical specialty related to their area of interest. During this rotation, the student will develop a fundamental knowledge base in major disease processes in the assigned surgical specialty. The student will improve upon their clinical decision-making skills and the ability to acquire, interpret, synthesize, and record clinical information required to define, understand, and manage patient problems in the assigned surgical specialty. They will improve the skills necessary to present patients to faculty, residents and peers in a clinical setting. In addition, student will continue to work on their interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates. This elective will allow for student exposure to different areas of medicine they may wish to pursue following graduation, and help each student determine their own areas of interest, strengths and weaknesses.

Prerequisite: Penn State Graduate Physician Assistant Student enrolled in the Clinical Education Curriculum. Concurrent: The student will be enrolled in clinical preceptorships during each of the clinical educational semesters.

PAS 778: Primary Care Experience I

2 Credits/Maximum of 2

PAS 778 Primary Care Experience I will be completed by all clinical year students during the third semester of the clinical phase. Each experience will occur in a primary care discipline of their choice. Students will explore various career options, extend clinical experiences and synthesize material they have learned, and allow for individualization of learning in the rotations. This course is designed to provide students additional time for development in the primary care setting. This course will help students in their professional role development, as they will be exposed to a select area briefly, yet in depth.

Prerequisite: Completion of Preclinical curriculum courses. Corequisite: The student will be enrolled in clinical preceptorships during clinical year semesters.

PAS 779: Primary Care Experience II

2 Credits/Maximum of 2

PAS 779 Primary Care Experience II will be completed by clinical year students during the third semester of the clinical phase. Each experience in a primary care discipline of their choice. Students will explore various career options, extend clinical experiences and synthesize material they have learned, and allow for individualization of learning in the rotations. This course is designed to provide students additional time for development in the primary care setting. This course will help students in their professional role development, as they will be exposed to a select area briefly, yet in depth.

Prerequisite: Completion of Preclinical curriculum courses. Concurrent: The student will be enrolled in clinical preceptorships during clinical year semesters.

PAS 780: Orthopedics II - Elective

4 Credits

This rotation will provide students with an opportunity to evaluate, exam, manage, and educate patients who have a complaint related to their musculoskeletal system. Students may assist in the operating room and will perform history and physical examinations and medical consultations for patients with a musculoskeletal complaint. Students may be part of the preoperative planning for a patient about to undergo surgery which includes the identification of indications and contraindications for a patient about to undergo surgery. Students may also play a role in the postoperative management of patients who have undergone surgery. These exposures that the students have during this rotation will prepare them for their clinical role in taking care of patients throughout their lifespan in various types of clinical settings which includes the care of the patient with a musculoskeletal complaint or complication.

Prerequisite: PAS 753 Orthopedics and Sports Medicine

PAS 781: Clinical Skills II

2 Credits/Maximum of 2

This course is the second course in a three-part clinical skills course series that will place emphasis on interactive and hands-on learning to prepare the graduate Physician Assistant in performing routine therapeutic procedures to manage common disease entities. In addition to discussing the indications, contraindications, and complications of each procedure, students will demonstrate the ability to perform

routine procedures using appropriate technique. Furthermore, this course will provide students with an in-depth evaluation of electrocardiogram (EKG) and radiologic interpretation skills with application to clinical cases. Students will be expected to utilize patient communication and examination skills throughout all skill performance evaluations to promote student experience in providing patient education in a culturally-sensitive manner. This course will occur in the same semester as clinical medicine II, pathophysiology II, pharmacology II, pharmacotherapeutics II, and history/physical examination II. All courses will closely align in a series of system-based modules that promote horizontal and vertical integration of the PA program curriculum and prepare students for a comprehensive education prior to clinical rotations. This course will be held in a lecture type of classroom in a large group discussion format. This course will be offered every fall semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort. Student evaluation will be in the form of written examinations, demonstration of procedural skills, professionalism, and documentation of procedure notes.

Prerequisite: Student admitted to the preclinical physician assistant program having fulfilled the requirements for admission to this program. **Corequisite:** PAS 703, PAS 705, PAS 708, PAS 711, PAS 714, PAS 717, SHS 711

PAS 782: Clinical Skills III

2 Credits/Maximum of 2

This course is the third course in a three-part clinical skills course series that will place emphasis on interactive and hands-on learning to prepare the graduate Physician Assistant in performing routine therapeutic procedures to manage common disease entities. In addition to discussing the indications, contraindications, and complications of each procedure, students will demonstrate the ability to perform routine procedures using appropriate technique. Furthermore, this course will provide students with an in-depth evaluation of emergency medicine, trauma, neurologic, and women's health skills with application to clinical cases. Students will be expected to utilize patient communication and examination skills throughout all skill performance evaluations to promote student experience in providing patient education in a culturally-sensitive manner. This course will occur in the same semester as clinical medicine III, pathophysiology III, pharmacology III, pharmacotherapeutics III, and history/physical examination III. All courses will closely align in a series of system-based modules that promote horizontal and vertical integration of the PA program curriculum and prepare students for a comprehensive education prior to clinical rotations. This course will be held in a lecture type of classroom in a large group discussion format. This course will be offered every spring semester for the physician assistant student in the Penn State College of Medicine Physician Assistant Program. Expected enrollment is for 30 students in this class cohort. Student evaluation will be in the form of written examinations, demonstration of procedural skills, professionalism, and documentation of procedure notes.

Prerequisite: Student admitted to the preclinical physician assistant program having fulfilled the requirements for admission to this program. **Concurrent:** PAS 706, PAS 709, PAS 712, PAS 715, PAS 718, MEP 721, PAS 719, SHS 711, PAS

PAS 783: Inclusive Healthcare Practices

1 Credits

This course provides students with a framework for recognizing unconscious biases and addressing individual and organizational practices that impact the delivery of fair and effective medical practices for our population. Students will discuss research and science related to unconscious bias. The course will be delivered in lecture, small group, and via case-based instruction on cross-cultural health care using a patient and family centered approach to providing humanistic care to all patients through the development of inclusive treatment plans and provision of patient education.

PAS 784: Principles of Dermatology

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Dermatology course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of dermatologic diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 785: Principles of Infectious Disease

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Infectious Disease course will introduce students to the basic underlying principles of infectious disease epidemiology and an overview of major infectious diseases. This course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of infectious diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 786: Principles of Ophthalmology and Otolaryngology

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Ophthalmology and Otolaryngology course will introduce students to the basic underlying

principles of diseases affecting the eyes, ears, nose, and throat. This course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of ophthalmic and otolaryngologic diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 787: Principles of Endocrinology

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Endocrinology course will introduce students to the basic underlying principles of disease. This course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of endocrinology conditions encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation

PAS 788: Principles of Nephrology/Urology

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Nephrology and Genitourinary Disease course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of renal and genitourinary diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 789: Principles of Pulmonology

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Pulmonology course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of pulmonary diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 790: Principles of Cardiology

4 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Cardiology course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of cardiovascular diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 791: Principles of Gastroenterology

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Gastrointestinal Disease course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of gastrointestinal diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 792: Principles of Neurology

3 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Neurology course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of neurologic diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 793: Principles of Rheumatology and Orthopaedics

4 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Rheumatology and Orthopaedics course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of rheumatologic and musculoskeletal diseases encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 794: Principles of Surgery

2 Credits

This module is part of the series of modules that comprises the PA program didactic curriculum. The Principles of Surgery course provides a disease oriented, problem focused, and patient centered approach to understanding the etiology, pathophysiology, risk factors, clinical manifestations, diagnosis, treatment, and prevention of surgical complications encountered in patients across the lifespan. Content areas in this module include: normal and abnormal anatomy and physiology, pathophysiology, genetic and molecular mechanisms of health and disease, pharmacology, pharmacotherapeutics, evidence-based medical research and advancements in clinical/surgical medicine, patient assessment, performance of applicable clinical and technical skills, interpretation of diagnostic and laboratory studies, using clinical reasoning to develop a treatment plan that includes indications for referral and standards for follow-up care, providing patient education, using service learning, and developing techniques for medical record documentation.

PAS 795: Rheumatology Elective Rotation

5 Credits

PAS 795 Rheumatology is an elective rotation offered in the clinical curriculum of the Penn State Physician Assistant Program. This rotation will provide students a five-week elective in Rheumatology. The Rheumatology rotation will provide the student with exposure to common conditions, such as osteoarthritis, osteoporosis, crystalline diseases, and rheumatoid disease as well as rare and diagnostically elusive conditions, such as vasculitis, spondyloarthropathies, and inflammatory muscle disease.

PAS 796: Diversity, Equity, and Inclusion Advocacy Elective

5 Credits

The Diversity, Equity, and Inclusion Advocacy Elective is an elective rotation offered as part of the clinical year curriculum at the Penn State Physician Assistant Program. This rotation will provide students with a five-week explorative elective caring for patients from diverse practice specialties or populations while providing opportunities for students to think critically about how bias impacts patients, communities, and clinical practices. Students will have the opportunity to participate in patient care across three to five specialty areas; including but not limited to gender-affirming care, prison medicine, addiction medicine, crisis intervention services, underserved areas through AHEC sites, street medicine, autism clinic, genetics, developmental pediatrics, complex care clinic, and/or care for individuals from plain communities. Students may also elect to spend a week of time with the DEB leaders of local organizations to enhance their understanding of the pervasiveness of systemic racism and bias in medicine leading to an increased morbidity and mortality for minoritized populations.

Primary Care Medicine (PCMED)

PCMED 740: Primary Care Area of Concentration

5 Credits/Maximum of 5

The Primary Care Area of Concentration (AOC) will address a shortage in students pursuing careers in primary care by providing medical students the opportunity to engage in the primary care community at Penn State. Students will develop skills and knowledge in team-based care across disciplines, population health, primary care research, community engagement, and advocacy. Additionally, students will develop longitudinal relationships with a group of peers and mentors invested in primary care. Medical students will be eligible to apply for this AOC at the end of phase II to participate in focused mentorship and activities in career exploration, residency applications, and community based projects during phases III and IV.

Prerequisite: Successful completion of Phase I and II, an application to the program completed prior to the start of Phase II Concurrent: Other Phase III and IV electives and requirements

PCMED 741: Primary Care Elective - Medical Director-Practice Management Fishburn Family Medicine

5 Credits

This module was developed for those students interested in gaining experience working with a medical director in primary care to learn about

managing a practice and with family physicians, nurse practitioners and physician assistants in primary care.

Prerequisite: successful completion of third year primary care clerkship

PCMED 742: Primary Care Longitudinal Advanced Elective

5 Credits

Longitudinal outpatient experience caring for patients over time (once/week over six months) emphasizing continuity of care.

Prerequisite: Limited to students enrolled in Penn State College of Medicine who have successfully completed the third year.

PCMED 743: Primary Care in PA

5 Credits

Four-week clinical experience with selected primary care physicians in PA.

Prerequisite: Limited to students enrolled in Penn State College of Medicine who have successfully completed the third year.

PCMED 744: Primary Care, Continental U.S. Sites

5 Credits

Four-week Primary Care related experience in an outpatient clinic within the continental U.S. that meets the student's individual needs.

Prerequisite: Limited to students enrolled in Penn State College of Medicine who have successfully completed the third year.

PCMED 745: Primary Care, Indian Health Service

5 Credits

Four-week clinical experience with primary care physicians located at Indian Health Service sites.

Prerequisite: Limited to students enrolled in Penn State College of Medicine who have successfully completed the third year.

PCMED 746: Primary Care, International

5 Credits

Four-week clinical experience with primary care physicians located at International sites.

Prerequisite: Limited to students enrolled in Penn State College of Medicine who have successfully completed the third year.

PCMED 747: Primary Care Elective - Leadership in Community Module

5 Credits

This module was developed for those who have both the interest and potential to become leaders in the health care of hi-risk children and their families, and to meet the challenges and opportunities of community-oriented primary care.

Prerequisite: successful completion of third year primary care clerkship

PCMED 748: Primary Care Elective - Penn State Orthopaedics and Sports Medicine

5 Credits

This module was developed for those students interested in gaining experience working in the areas of primary care sports medicine.

Prerequisite: successful completion of third year primary care clerkship

PCMED 749: Primary Care Sports Medicine, Hershey (4th year)

5 Credits

This course provides exposure to concepts utilized in the evaluation and initial treatment of common sports medicine conditions.

Prerequisite: successful completion of all third year core clerkships

Problem-Based Learning Facilitation - MD (PBL)

PBL 720: Case Development in Medical Education

5 Credits

This course will teach the major steps in creating a clinical case scenario.

Prerequisite: successful completion of Years 1-3 of the medical curriculum

PBL 743: Problem-based Learning Facilitation

5 Credits

Development of skills in facilitation of small group learning (PBL) and introductory understanding of educational theory supporting PBL.

Prerequisite: No course failures. A HP or H grade in 1 course and 1 clerkship. No noted unprofessional behaviors in PBL. A first-time pass in all NBME subject exams and USMLE Step I. A recommendation letter. A course director signature.

Psychiatry - MD (PSCHT)

PSCHT 700: Psychiatry Clerkship

6 Credits/Maximum of 6

The third-year clinical clerkship in Psychiatry is designed to build upon your prior basic science knowledge, provide you with a broad exposure to the content and gain experience in the practice of Psychiatry. Your clinical rotations during this clerkship will involve: - Two weeks of inpatient service (adult or child) - One week of consultation liaison psychiatry - One week of outpatient ambulatory care services

Prerequisite: Successful completion of Phase I coursework & pass Step 1

PSCHT 744: Addiction Medicine Elective

5 Credits/Maximum of 5

The addiction medicine elective is a FOUR-week course typically delivered in Phase III that is designed to enhance comfort with addiction medicine and chronic pain management in the inpatient and outpatient settings. The course will focus on principles of addiction medicine and chronic pain management, with an emphasis on opioids. Course material will be

presented in the form of workplace teaching in the clinic and readings from textbooks and online learning modules. Central themes of the course are identification of opioid use disorder in the clinical setting, the role of medications for treatment of substance use disorders, Alcoholics Anonymous (AA) and Narcotics Anonymous (NA), and outpatient therapy for treatment of addiction as well as non-opiate treatment of chronic pain.

PSCHT 771: Adult Psychiatry Inpatient Acting Internship

5 Credits/Maximum of 5

Students are assigned selected adult inpatients and receive close individual supervision in diagnosis and treatment, including psychotherapy and drug therapy.

Prerequisite: Successful completion of the third year core clerkships

PSCHT 773: Child Psychiatry Inpatient Acting Internship

5 Credits/Maximum of 5

Students are involved, under faculty supervision, in diagnostic evaluation and treatment planning and implementation of selected child and adolescent outpatients.

Prerequisite: Successful completion of third year core clerkships

PSCHT 774: Child Psychiatry Outpatient Elective

5-15 Credits/Maximum of 15

Students are involved, under faculty supervision, in diagnostic evaluation and treatment planning and implementation of selected child and adolescent inpatients.

Prerequisite: PSCHT700

PSCHT 775: Consultation/Liaison Psychiatry Elective

5-15 Credits/Maximum of 15

Students evaluate medical/surgical patients where psychiatric consultation is requested and receive supervision in diagnosis and short-term psychiatric treatment.

Prerequisite: PSCHT700

PSCHT 776: Application of Health Systems Science within Geriatric Psychiatry

2.5 Credits/Maximum of 2.5

The application of HSS within Geriatric Psychiatry elective is a two-week elective course designed to provide students an opportunity to apply the various aspects of HSS within the subspecialty of geriatric psychiatry. The elective is aimed at those students looking to expand their knowledge in HSS, as well as their knowledge of the geriatric population with severe mental illness. Students will be embedded within the inpatient psychiatric treatment team and assigned 1-2 patients whose cases they can use as case studies to further explore the core domains of HSS, with a particular emphasis on population health, healthcare structures and processes, and teamwork and interprofessional collaboration. There will also be a community engagement activity in which the student will spend a half day working with an Adult Protective

Services worker through the Dauphin County Area on Aging in the community.

PSCHT 783: Research in Physiology and Pathology of Sleep

5-15 Credits/Maximum of 15

Participation in experimental and clinical studies of normal and disordered sleep and the evaluation, diagnosis and treatment of sleep disorders.

Prerequisite: completion of second-year medical school

PSCHT 796: Psychiatry Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

PSCHT 797: Psychiatry Special Topics

5 Credits/Maximum of 5

Psychiatry Special Topics.

Prerequisite: successful completion of 3rd year core clerkships

Radiology (RAD)

RAD 700: Pediatric Radiology

5 Credits/Maximum of 5

Tutorial course emphasizing interpretation, clinical correlation, indications, and limitations of imaging studies used in the evaluation of infants and children.

Prerequisite: first and second years of medical school; third year of medical school recommended but not required

RAD 771: General Radiology–Clinical Elective

5 Credits/Maximum of 5

Clinical elective including experience in diagnostic radiology, film interpretation, nuclear medicine, and radiation therapy.

Prerequisite: completion of first two years of medical school

RAD 772: Radiology Advanced Elective

5 Credits/Maximum of 5

Clinical experience in interpreting radiographs and imaging studies, , fluoroscopy, dictating and signing radiologic reports, and providing consultative services.

Prerequisite: written permission by the department of radiology

RAD 773: Interventional Radiology

5 Credits/Maximum of 5

The Interventional Radiology (RAD 773) elective incorporates Patient Care, Medical Knowledge, Practice-based Learning and Improvement,

Interpersonal and Communication Skills, Professionalism, and Systems-based Practice. Key competencies students develop over the course of medical school and the medical knowledge gained with completion of the prerequisite General Radiology (RAD771) elective are applied to the clinical practice of Interventional Radiology. Interventional Radiology is an invaluable resource to modern healthcare, providing minimally-invasive, image-guided procedures which allow for diagnosis and treatment of various conditions. The types of procedures and their potential clinical applications offered by Interventional Radiology has greatly increased the need for unique clinical expertise and has led for it to become its own specialty. Interventional Radiology is utilized by nearly every clinical subspecialty, allowing an Interventional Radiologist to be exposed to a variety of clinical conditions and patient populations. Because of this, the elective can be beneficial for any student, regardless of career choice. Major objectives of the elective are to expose students to the wide range of procedures utilizing various imaging modalities, learn about indications and contraindications for commonly encountered procedures, gain experience with the pre-procedural assessment and post-procedural management involved with the clinical care of patients, understand the importance of radiation and patient safety practices in the procedural suite. Over the course of the 4-week elective the topics to be discussed are Patient-Centered Care, Radiologic Diagnosis and Treatment, Procedural Considerations, and Safety

Prerequisites: RAD 771

RAD 774: Radiation Oncology Elective (3rd or 4th year)

5 Credits/Maximum of 5

This course provides exposure to the scope of clinical Radiation Oncology.

Prerequisite: successful completion of the 2nd year of medical school

RAD 774A: Radiation Oncology Elective (3rd year)

2.5 Credits

This course provides 2 week exposure to the scope of clinical Radiation Oncology.

Prerequisite: successful completion of the 2nd year of medical school

RAD 795: Virtual General Radiology, phase III

5 Credits/Maximum of 5

This General Radiology RAD 771 Virtual Radiology Elective incorporates Patient Care, Medical Knowledge, Practice-based Learning and Improvement, Interpersonal and Communication Skills, Professionalism, and Systems-based Practice. Key competencies that medical students should achieve in radiology are refined over the four years of medical school and this elective will utilize multiple teaching methods to reinforce and teach the student some of these competencies in a remote clinical learning environment. Diagnostic radiology has become an integral part in the assessment of health, diagnosis of disease and treatment of patients. The elective exposes the student to all modalities currently used in diagnostic imaging. Major objective of the elective are the understanding of the radiology safety issues to patient and medical personnel, indications and contraindications for radiological studies and procedures and the cost-effective radiological work-up of various clinical conditions. Another major aim of the course is to teach issues of relevance for patient preparation for radiologic studies and procedures. Approach to the interpretation of various radiology studies

and recognition of common emergency radiology findings will also be addressed. For these reasons, the elective is of potential major benefit for any student, whatever his or her ultimate career objective may be. Over the course of this 4-week elective, the topics discuss include safety, appropriateness, film interpretation, and importance of expediting and executing patient care when emergent radiologic findings are diagnosed.

RAD 796: Radiology Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, supervised on an individual basis and which fall outside the scope of formal courses.

RAD 796A: Radiology Individual Studies for 3rd year Medical Students

2.5 Credits

Radiology Individual Studies for 3rd Year Medical Students.

Prerequisite: successful completion of one 3rd year core clerkship

RAD 797: Radiology Special Topics

5 Credits/Maximum of 5

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RAD 797A: Radiology MSK

2.5 Credits

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Renal Medicine - MD (REN)

REN 712: Renal Medicine

4 Credits/Maximum of 4

Course provides exposure to basic concepts in histology/pathology, biochemistry, physiology and clinical medicine related to fluid, electrolyte and acid/base homeostasis.

Prerequisite: must have completed all preceding course work in the first year of medical school

Respiratory Medicine (RESP)

RESP 712: Respiratory Medicine

4-5 Credits/Maximum of 5

Introduction to normal and abnormal structure and processes of the respiratory system, principles of therapeutics and factors affecting disease treatment and prevention.

Prerequisite: must have completed all preceding course work

Sciences Health Systems (SHS)

SHS 711: Foundations of Health Systems Science

4 Credits/Maximum of 4

Students will learn the foundations of health systems through in class instruction and patient navigation clinical site experiences.

SHS 712: Health Systems Science in Context

4 Credits/Maximum of 4

Students will learn the foundations of health systems through in class instruction and patient navigation clinical site experiences.

Prerequisite: Satisfactory completion of SHS 711 (Fall)

SHS 721: Science of Health Systems

2 Credits/Maximum of 2

Students will learn the foundations of health systems through in class instruction and patient navigation clinical site experiences.

Prerequisite: SHS 711 and SHS 712

SHS 742: Health Systems and COVID-19 Pandemic Response II Elective

1-4 Credits/Maximum of 4

This variable-credit elective (range 1-4 credits based upon time) provides the foundation for learning Health Systems Science (HSS) and other related Clinical/Basic Sciences and Health Humanities in the context of the 2020-2021 COVID-19 pandemic, specifically beginning December 2020. This course will provide the opportunity for experiential learning opportunities by engaging medical and physician assistant students in various tasks to help address the health system and region's response to the emergence and spread of COVID-19. Students will be able to apply what they have learned about HSS concepts, in addition to other clinical and humanities courses, in their years of medical school training to real-world examples, as well as experience a deeper understanding of these principles as they observe and analyze the system's response to the pandemic. Each student will choose an experience from several identified projects or task forces that will be pre-approved by Penn State Health, Penn State College of Medicine, and the Penn State Health Legal Department. The development and oversight of the experiences will be co-facilitated by the course co-directors, in collaboration with medical students who volunteer to be contributors in a co-design task force. All of the experiences will be value-added to the health system, extending the work of the care and support teams. All experiences will follow the current policies as adopted by PSCOM and the Dean in regards to being performed remotely or in person. Students will not have face-to-face interactions with patients with COVID-19 or persons under investigation for COVID-19. All of the experiences will have faculty oversight and guidance. Students may engage in multiple projects as there is an anticipated dynamic nature to the roles students will contribute during the pandemic. To obtain credit, students will be required to actively participate in the experience, log their activities, and complete designated assignments applicable to each experience as outlined by the course directors. These assignments may include required readings, teaching other medical students, and development of an end-of-course written project.

Prerequisites: Students must be in good academic standing

SHS 744: Health Systems Science Academy Elective

5 Credits/Maximum of 5

The Health Systems Science elective is a longitudinal elective course designed to provide students an advanced learning and authentic experience in health systems sciences within a healthcare delivery system (Penn State Health). Students will be exposed to aspects of population health, value-based care, healthcare systems improvement, healthcare policy and economics, and health care delivery structures and processes. Part of the elective will be spent collaborating with a Health Systems Science Academy scholar to participate in the development of an educational or clinical project that will address an authentic challenge to Penn State Hershey Health System. Sessions will be held two Fridays per month for a total of nine months beginning in September and ending in May. Course material will be presented in the form of mentored relationships with those health systems science faculty and scholars, classroom teaching from various health systems educators, and health systems administrators.

Prerequisite: Successful completion of Phase I and Phase II and Translating Health Systems Science in Phase III

SHS 797: Health Systems and COVID-19 Response Special Topics Elective

1-4 Credits/Maximum of 4

This variable-credit elective (range 1-4 credits based upon time) provides the foundation for learning core Health Systems Science (HSS) and other related Clinical/Basic Sciences and Health Humanities in the context of the 2019-2020 COVID-19 Global Pandemic. This course will provide the opportunity for experiential learning opportunities by engaging students in various tasks to help address the health system and region's response to the emergence and spread of COVID-19. Students will be able to apply what they have learned about HSS concepts in their years of medical school training to real-world examples, as well as experience a deeper understanding of these principles as they observe and analyze the system's response to the pandemic. Each student will choose a primary experience from the emerging list of projects that have been pre-approved by Penn State Health, Penn State College of Medicine, and the Penn State Health Legal Department. All of the experiences will be value-added to the health system, extending the work of the care and support teams; all experiences will be performed remotely and away from direct patient contact and any of the campuses of Penn State College of Medicine or Penn State Health. All of the experiences will have faculty oversight and guidance as would be expected of any other course or clinical clerkships. Students may engage in multiple projects as there is an anticipated dynamic nature to the roles students will contribute during the pandemic. To obtain credit, students will be required to actively participate in the experience, log their activities, and complete designated assignments applicable to each experience as outlined by the course directors. These assignments may include required readings, teaching other medical students, and development of an end-of-course written project.

Prerequisites: Successful completion of Phase I and Phase II & students must be in good academic standing with no identified deficiencies in their clerkships.

Scientific Principles of Medicine (SPM)

SPM 711: Scientific Principles of Medicine

6 Credits/Maximum of 6

This course provides an introduction to the basic science principles that form a foundation for the study of clinical medicine.

Prerequisite: completion of all preceding Phase 1 courses

Students as Educators (SAE)

SAE 744: Students as Educators Elective

2.5 Credits/Maximum of 2.5

This 2.5 credit elective serves as a foundation for learning the principles of practical clinical, classroom, and small group teaching techniques. This course will provide training in educational methods and an introduction to theory to help medical students become effective educators. Students will apply what they have learned about research-based teaching practices as they work with first, second, and/or third year medical students. Each student will choose at least one type of teaching opportunity from a list provided. Students will be required to actively participate in teaching workshop sessions, complete required readings, teach medical students, be formally observed while teaching by a faculty member, and use information from a variety of sources to reflect on their learning and teaching.

Prerequisite: Completion of Phase II, no deficiencies in clerkships, letter of recommendation.

Surgery - MD (SURG)

SURG 700: Surgery Clerkship

12 Credits/Maximum of 12

The surgery clerkship introduces students to the basic principles of surgery and the basic principles of caring for the surgical patient. It is NOT the purpose of the surgical clerkship to train medical students in the technical practice of surgery or to interest only those students who intend to pursue a career in surgery. Rather, the clerkship is designed to equip all students with the knowledge, skills, and attitudes relevant to surgical patient management that ALL physicians should possess. Through this exposure, the student will begin to understand the general process of the application of surgical therapy to patients across the age spectrum and in different stages of disease. Furthermore, by participating as a member of the surgical team, the student will experience the professional role of the surgeon as a member of a multidisciplinary team that provides care for and communication about a patient within a complex healthcare system. At all points during the rotation, discussion and attention should be paid toward the quality, safety, and value of the care being rendered. It is the responsibility of all team members (staff, students, residents, fellows and faculty) to continually ensure a respectful learning environment that is welcoming to the diversity of individuals that make up and strengthen our academic health system. The clerkship is structured upon the principle that learning is an active process which can be accomplished only by the engaged student. This is facilitated by the identification of learning goals and prospective planning. The role of the faculty and house staff (where applicable) is to provide collaboration,

guidance, stimulation, and role modelling. All of this is intended to make the student a partner in the community of learners that is academic surgery. During this core clerkship experience, students will learn pre- and post-operative management, participate in surgical procedures, and gain exposure to the initial management of traumatically injured patients. Great emphasis will be placed upon the skill of critical thinking and reasoning to arrive at an optimal, evidence-based therapy for the patient.

Prerequisite: Successful completion of Phase I coursework & pass Step 1

SURG 710: General Surgery Acting Internship

6 Credits/Maximum of 6

The overarching goal is to have you function as an intern on a busy surgery service. Core Acting Internship rotations at Penn State emphasize students' active role on the team to ensure readiness for residency. In their role as acting interns, students on Core AI rotations will develop increasing proficiency and independence in developing plans of care, entering orders, preparing and performing patient handoffs, appropriately evaluating and responding to changes in patients' clinical conditions, and applying evidence-based care to patient management. This should include developing time management skills, triaging of patients and tasks, situational awareness and professionalism-even in the face of adversity. You should exemplify professional behavior, communication, and teamwork with patients and families, interprofessional care team members, and interdisciplinary consultants. You should use critical thinking and your medical knowledge, as well as the resources available to you, to guide judgement and medical decision making in a semi-autonomous fashion. This will be shown by appropriate order entry and documentation within the medical record. You should take part in all patient care activities and ensure effective transfers of care, discharge planning, and necessary follow ups along with appropriate documentation. Your care should span from clinic to home and ER to discharge, encompassing all aspects of patient care.

Prerequisite: successful completion of all third year clerkships and pre-conference with course director

SURG 711: Cardiothoracic Surgery Acting Internship

5 Credits

Acting Internship in Adult Cardiothoracic Surgery.

Prerequisite: completion of all third-year core clerkships; pre-conference with course director

SURG 712: Surgical Endocrinology Elective

5 Credits/Maximum of 5

An in-depth experience involving the medical and surgical management of endocrinological disorders.

Prerequisite: completion of all third-year core clerkships

SURG 713: Vascular Surgery Acting Internship

5 Credits/Maximum of 5

An opportunity for in-depth experience in vascular surgery.

Prerequisite: completion of all third-year core clerkships

SURG 714: Transplant Surgery Acting Internship

5 Credits/Maximum of 5

An in-depth experience in the preoperative evaluation, intra-operative procedures, and postoperative management of kidney, liver, and pancreas transplant patients.

Prerequisite: third year core clerkships

SURG 720: Plastic Surgery Acting Internship

5 Credits/Maximum of 5

Preceptorship with an active plastic surgical service at The Milton S. Hershey Medical Center or an affiliated hospital.

Prerequisite: completion of the third-year core clerkships

SURG 722: Hand Surgery Acting Internship

5 Credits/Maximum of 5

Surgical Acting Internship experience in Hand Surgery.

Prerequisite: completion of all third-year core clerkships

SURG 733: Plastic Surgery Elective for 3rd Year Students

5 Credits

Plastic Surgery is a broad surgical specialty in which cosmetic surgery has a relatively small part. This independent one-month rotation has been designed to allow interested 3rd-year medical students at Penn State an in depth exposure to the unique elements of academic plastic surgery. In addition to mastering specialized surgical techniques and applications, plastic surgeons also frequently collaborate with many other types of surgical specialists for specific problems. The duration of this rotation will improve the frequency of such interactions in addition to strengthening the students' overall experience. During their rotation, students will be expected to pre-round on patients whom they have been following, write notes, round with the Plastic Surgery team every morning, and present and help manage their patients. They will then report to the assigned clinic or OR. They will attend the division didactic sessions. Students will typically be expected to participate in weekend duties on two separate weekends including pre-rounding, rounding with the team, and presenting assigned patients to the on-call attending. Students may elect to participate in any emergencies that present over the weekends, as well. Students should expect to gain exposure in many if not all of the major areas of Plastic Surgery including, but not limited to, oncologic breast reconstruction, general reconstructive surgery (e.g., traumatic and/or oncologic wound coverage, Mohs closures), pediatric craniofacial surgery (e.g., cleft lips and cranial vault remodeling), skin oncology (e.g., cancer resection and reconstruction), hand/wrist surgery (e.g., peripheral nerve decompression and fracture fixation), microsurgery, burn care, cosmetic surgery, treatment of facial fractures, and pressure sore care. To facilitate this experience, students will generally be assigned to 1-week sub-rotations in the following categories: Pediatric Craniofacial Surgery, Hand/Upper Extremity Surgery, Reconstructive (General, Breast, and Trauma) Surgery, and Skin Oncology/Mohs reconstruction. Students can gain additional responsibilities as determined by their level of comprehension and should anticipate assisting in operations, as is feasible and appropriate.

Prerequisite: Successful completion of the first two years of medical school. Students will not be permitted to participate in both a 2-week

Plastic Surgery rotation during their Surgery Clerkship and a 1-month third-year elective in Plas

SURG 740: Urology Acting Internship

5 Credits/Maximum of 5

In-depth experience in evaluation and management of urologic problems.

Prerequisite: completion of all third-year core clerkships

SURG 741: Intensive Respiratory Care – Anesthesia

5 Credits/Maximum of 5

Students are taught to assess and manage acute respiratory insufficiency.

Prerequisite: successful completion of all 3rd year clinical clerkships

SURG 745: Pediatric Cardiothoracic Surgery Elective

5 Credits/Maximum of 5

This fourth-year elective provides an introduction to the operative repair and peri-operative management of simple and complex congenital heart disease. PED (SURG) 745 Pediatric Cardiothoracic Surgery Elective (5) This elective in pediatric cardiothoracic surgery is offered to fourth-year medical students with an interest in congenital heart disease. It is principally targeted at students who plan a career in pediatrics, surgery, or pediatric or adult cardiology. The course is offered year-round on a monthly basis, with enrollment limited to 1-2 students per rotation. Students will work exclusively with attending surgeons in the clinical environment, and will participate in the comprehensive surgical management of infants, children, and adults with congenital heart disease. Clinical exposure will be provided to the initial surgical consultation, the judgment and rationale for operative versus non-operative management, the preoperative family counseling meeting and informed consent process, and the formulation of the operative plan. In the operating room, students will second-assist with pediatric heart surgery and will gain first-hand appreciation of the anatomic defects and their surgical repair. Postoperatively, students will participate in clinical rounds on pediatric heart surgery patients, and will follow the patients to discharge. The elective will emphasize the multi-disciplinary approach to the management of congenital heart disease, with collaborative exposure to pediatric cardiology, pediatric critical care, cardiac anesthesia, and cardiology for adults with congenital heart disease. Didactic lectures, case presentations, and reviews will be provided to students as an introduction to the major heart defects. Students will gain skill in the interpretation of echocardiograms, and will have the opportunity to view, in real-time, intraoperative transesophageal echo images, and correlate those images to the live, beating heart. Students will also gain skill in interpretation of cardiac MRI and CT angiography. The course is offered as an elective for students seeking an advanced introduction to surgery for congenital heart defects. The course is not intended as an acting-internship; thus, there is no in-house call, and limited night or weekend clinical requirements. A pre-test and a post-test will be administered.

Prerequisite: third-year core clerkships

Cross-listed with: PED 745

SURG 780: Pediatric Surgery Acting Internship

5 Credits/Maximum of 5

Exposure to the surgical crises of the pediatric patient and their treatment.

Prerequisite: completion of all third-year requirements

SURG 790: Senior Medical Student Surgery Capstone Course

2.5 Credits

This course is designed for graduating medical students that have applied to or matched a surgical residency (general surgery, orthopedics, neurosurgery, urology, plastic surgery, and ENT) to provide them with an advanced cognitive knowledge base and experience with procedural skills frequently required of surgical interns. Additionally, this course will allow students to gain invaluable experience with interdisciplinary professionalism and case-based problem solving. Curriculum includes didactic lectures, case-based and small group learning sessions, simulation based procedural instruction and practice, as well as standardized patient encounters. Upon completion of the course students will have better knowledge of surgical patient care, be able to proficiently perform surgical skills frequently required of surgical residents, and have improved confidence in their preparation for surgical residency. A pre- and post-survey will focus on participants' confidence in specific procedural skills and common on-call surgical problems. Pre- and post-exams will also be given to measure student's knowledge on peri-operative patient care and complications. Grading will be Pass-Fail. Additionally, students that complete the skills sessions and pass skill proficiency exams may receive a letter addressed to their residency program director from the course directors to attest to their proficiency of the skills taught in this course.

Prerequisite: Open to students in Phase III/IV; successful completion of all phase I, II and III coursework. Students should have applied to/matched into a surgical internship.

SURG 796: Surgery Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

SURG 796A: Surgery Individual Studies for 3rd Year Medical Students

2.5 Credits

Surgery Individual Studies for 3rd Year Medical Students.

Prerequisite: successful completion of one 3rd year core clerkship

SURG 797: Surgery Special Topics

5 Credits/Maximum of 5

Formal courses given on a topical or special interest subject which may be offered infrequently.

Prerequisite: successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for this course.

Transition (TRANS)

TRANS 711: Transition to Medical School

1 Credits

A prologue to the student's medical school experience and an introduction to the medical profession.

TRANS 733: Transition to Clerkships

2 Credits

This course is designed to provide medical students with a transitional overview for using the clinical and educational systems that are essential tools during Phases II-IV of the medical school curriculum. TRANS 733 will also ensure that students complete mandatory hospital training sessions that ensure their compliance for the MS Hershey Medical Center and with our affiliate sites. Using large and small group discussions, standardized patient encounters, and individual module completion, students will meet all of the course objectives outlined below. At completion, students will have attained the foundational skill set and knowledge base that will ensure a successful transition to their clinical training, to be built upon during mandatory clerkships and clinical electives.

TRANS 743: Transition to Internship

1-2 Credits/Maximum of 2

Provide review of clinical skills prior to internship training, and introduce new skills in team building, education and time management.

Transition Clinical Medicine (TCM)

TCM 706: Transition to Clinical Medicine

2 Credits

Introductory course that teaches the basic skills and knowledge a student needs to enter the clinical training years.

Prerequisite: medical school enrollment/successful completion of Year I and II courses

Translating Health Systems Science (THS)

THS 743: Translating Health Systems Science to the Clinical Setting

2.5 Credits/Maximum of 2.5

This course is designed to help apply concepts of patient safety, quality improvement, value, and teams to the clinical setting and build upon previous learned Public Health principles. The goal is to guide learning in these concepts so that the student will have base knowledge to help improve care of patients and the health system in which they will work during the fourth year of medical school, residencies, and beyond. The content of this course endeavors to help students become "systems thinkers". By design, this course emphasizes teamwork, an essential component in providing quality care. Opportunities will be provided in

this course to actively identify patient safety issues and develop a quality improvement project proposal. Additional resources will be provided so that students may continue their learning on health systems after the course is co

Prerequisite: Successful completion of Phase I curriculum

Underserved Medicine and Domestic Health (UMDH)

UMDH 700: Underserved Medicine and Domestic Health

5 Credits/Maximum of 5

Students will apply critical thinking and clinical reasoning to improve patient outcomes within the framework of underserved medicine.

Prerequisite: medical students must have completed all requirements to enter Phase II of their training to complete this clerkship

INDEX

A

About Penn State	8
About the College of Medicine	5
Anatomy - MD (ANAT)	33
Anesthesiology - MD (ANSTH)	34
Archive	2

C

Cardiology - MD (CAR)	35
Career Exploration and Synthesis (CES)	35
College of Medicine Bulletin	2
College of Medicine Courses	33
Complementary Alternative Medicine (CAM)	35
Consolidation (CONSD)	35
Culinary Medicine (CULMD)	36

D

Dermatology - MD (DERM)	36
-------------------------------	----

E

Emergency Medicine - MD (EMED)	36
Endocrinology and Reproductive Medicine (ENREP)	37

F

Family and Community Medicine - MD (FCMED)	37
Form and Function (FORM)	39
Foundations of Patient Centered Care (FPCC)	39

G

Gastroenterology - MD (GI)	39
General Information	2
Global Health (GH)	39
Graduation Information	8

H

Humanities - MD (HMN)	39
-----------------------------	----

I

Independent Study (INDEP)	44
---------------------------------	----

M

MD Program	11
Medical Home Curriculum (MHC)	44
Medical Student Research (MSR)	44
Medical Triage and Resuscitation (MEDTR)	44
Medicine - Interdisciplinary (MDADM)	44
Medicine - MD (MED)	45

Musculoskeletal System (MSK)	48
------------------------------------	----

N

Neural and Behavioral Science (NBS)	48
Neuroscience - MD (NEURO)	48
Neurosurgery (NSURG)	49

O

Obstetrics and Gynecology - MD (OBGYN)	49
Ophthalmology (OPHTH)	51
Orthopaedics (ORTHO)	52
Otolaryngology (OTO)	52

P

Pathology - MD (PATH)	53
Patients and Sciences (PS)	53
Pediatrics - MD (PED)	54
Physical Medicine and Rehabilitation (PMR)	57
Physician Assistant Program	25
Physician Assistant Studies (PAS)	58
Primary Care Medicine (PCMED)	75
Problem-Based Learning Facilitation - MD (PBL)	76
Psychiatry - MD (PSCHT)	76

R

Radiology (RAD)	77
Renal Medicine - MD (REN)	78
Residencies and Fellowships	8
Resources	6
Respiratory Medicine (RESP)	78

S

Sciences Health Systems (SHS)	79
Scientific Principles of Medicine (SPM)	80
Student Handbooks	8
Students as Educators (SAE)	80
Surgery - MD (SURG)	80

T

Transition Clinical Medicine (TCM)	82
Transition (TRANS)	82
Translating Health Systems Science (THS)	82

U

Underserved Medicine and Domestic Health (UMDH)	83
University Course Descriptions	29
Using this Bulletin	2