Faculty Consent Agenda Item

Program Name & Degree	Master of Medical Studies					
Requested by (College/Department)	College of Medicine – Phoenix					
CIP Code	51.1102					
	The Master of Medical S	tudies (MMS) is a	designed for Ari	zona residents w	/hose	
Purpose of Program	objective is a career in m	nedicine or other	healthcare field	ls. The MMS will	provide a	
	means to pursue an edu	cation related to	medicine. The r	ecruited studen	t will typically	
	be from the Phoenix area	a or Northern Ar	izona, who is co	mmitted to serv	ing	
	underserved populations	s or who may hav	ve been under-r	esourced for rea	asons such as	
	socioeconomic status, ec	ducational oppor	tunities, geogra	phy, and/or beir	ng a first-	
	generation college atten	dee.			0	
	The MMS will focus on biomedical science, leadership skills, and hands-on clinical experience to prepare individuals for the rigors of medical education or related healthcare fields. Upon successful completion of the MMS, students have the opportunity to matriculate into the College of Medicine – Phoenix, with the goal to successfully complete medical school, and continue to serve the residents of Arizona as physicians. Alternatively, they will be equipped with the foundational skills and scientific knowledge necessary for the rigors of working in other fields of medicine or biomedical research, epidemiology, biostatistics, public health, biotechnology or research administration.					
	1st year2nd year3rd year4th year5th year					
	10	10	10	10	10	
Source(s) of Funding	Funding will be covered by partner sponsorships, gift funding, and strategic investment from the College of Medicine – Phoenix. Current partner sponsors are Arizona Community Foundation, Arizona Public Service (APS), BlueCross BlueShield of Arizona, and UnitedHealthcare. Ongoing development efforts are in process to continue these partnerships and increase support.					

Request for Authorization to Implement a New Degree Program

Approvals:

ABOR	
Graduate Council	9/22/2017
CAAC	10/17/2017
Provost's Council	
Faculty Senate Executive Cmte	
Faculty Senate	

THE UNIVERSITY OF ARIZONA®

NEW ACADEMIC PROGRAM – REQUEST FORM

I. PROGRAM NAME, DESCRIPTION AND CIP CODE

A. **PROPOSED PROGRAM NAME AND DEGREE(S) TO BE OFFERED** – for PhD programs indicate whether a terminal Master's degree will also be offered.

Master of Medical Studies

This program will replace the existing Professional Studies in Health Sciences graduate certificate for the College of Medicine – Phoenix, also referred to as the "*Pathway Scholars Program.*"

The proposed Master of Medical Studies (MMS) Degree Program builds on our existing Graduate Certificate in Professional Studies in Health Sciences. Expanding the current certificate program to a master's degree will significantly enhance the students' medical career potential, providing an enduring benefit from the degree. Leadership skills, critical thinking and evidence-based research design are emphasized to further expand their lifelong learning potential and career development opportunities. Students will have more time in a clinical setting, increasing their interaction with clinical faculty and expanding their thesis research opportunities. These additions would significantly increase the course hours and exceed the limits of a Graduate Certificate. In addition, enrollment in a certificate program does not allow students to obtain financial aid. Although the MMS Program has successfully obtained external support for tuition and fees, most students required financial aid to support living expenses. Thus, development of a Master's level degree will provide significant benefit to students both immediately and throughout their careers.

B. CIP CODE – go to the National Statistics for Education web site (<u>http://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55</u>) to select an appropriate CIP Code or contact Pam Coonan (621-0950) coonan@email.arizona.edu for assistance.

51.1102 Pre-Medicine/Pre-Medical Studies

C. **DEPARTMENT/UNIT AND COLLEGE** – *indicate the managing dept/unit and college for multiinterdisciplinary programs with multiple participating units/colleges.*

The proposed degree will be under the UA College of Medicine – Phoenix (COM-P), within the Academic Affairs Unit. COM-P is an appropriate managing unit because the majority of MMS students intend to matriculate directly into COM-P, and the MMS Program serves as a graduate-level precursor to professional medical studies, thereby addressing diversity in COM-P admissions for accreditation purposes. Although MMS courses are separate and distinct from medical courses, MMS curricular evaluation will be provided by the COM-P Curriculum Committee. The Master of Medical Studies Program Committee will be responsible for program oversight.

Within the Academic Affairs Unit, the Master of Medical Studies Program Committee will oversee the program and its evaluation as a whole. The MMS Program Committee is responsible for the following:

- Monitoring student workload
- Ensuring that the curriculum provides content of sufficient breadth and depth and includes each of the required topics to meet Program goals
- Monitoring the overall quality of the MMS Program
- Monitoring the outcomes of the curriculum as a whole.
- Identifying and addressing problems related to course or curriculum structure, delivery, or outcomes, and track results achieved.
- Conducting formal annual reviews of the MMS curriculum report these reviews to UACOM-P Curriculum Committee and UA Graduate College
- Setting the standards of achievement for the MMS curriculum
- Assessing quality of the educational program, including an assessment of student outcomes
- Assessing quality of research, creative activity, or scholarly work
- Assessing quality of outreach activities and service to the University, the profession, and the community
- Developing potential and future expectations for the program

The Curriculum Committee is governed as follows:

UACOM-P has an established Curriculum Committee reporting to the Dean, in his capacity as Chief Academic Officer of COM-P, to achieve its educational mission as it pertains to curricular and policy matters. The Curriculum Committee works with the Chief Academic Officer (i.e., the Dean) or designee to advance educational goals and to review all components of the curriculum. The Chief Academic Officer has final veto power. The Director of the Master of Medical Studies Program represents the MMS Program to the Curriculum Committee, and attends each meeting of the Curriculum Committee to ensure uniform representation and consistent depiction of the Program.

The Director of the Master of Medical Studies Program will submit an annual report to the Graduate College and the COM-P Curriculum Committee on the following:

- Student workload
- Formal reviews of the individual courses
- The standards of achievement for courses, and the curriculum as a whole
- Evaluation of the curriculum ensuring that it provides content of sufficient breadth and depth
- Problems and solutions related to course or curriculum structure, delivery, or outcomes, and tracking of the results achieved

Campus and Location Offering – *indicate by highlighting in yellow the campus(es) and location(s)* where this program will be offered.

UA South Campus	UA Main	UA Online
Sierra Vista	Tucson	Online
Douglas	UA Downtown	
Mesa		Distance Campus
Pima CC East	Phoenix Biomedical Campus	Chandler
Pinal County	Phoenix	Paradise Valley
Santa Cruz		Yuma
UA Science and Tech Park		

II. PURPOSE AND NATURE OF PROGRAM–Please describe the purpose and nature of your program and explain the ways in which it is similar to and different from similar programs at two public peer institutions. Please use the attached comparison chart to assist you.

The proposed Master of Medical Studies degree is designed for Arizona residents whose object is a career in medicine and other medical fields and who wish to enter a field of medicine. The program will provide a means to pursue an education related to medicine for students who may have been underresourced for reasons such as socioeconomic status, educational opportunities, geography, and/or being a first-generation college attendee. The MMS Program will deliver a demanding curriculum that will include fundamental biomedical sciences, evidence-based medicine, research design, critical analysis of research publications, hands-on training in clinical assessment skills, clinician preceptorship in healthcare settings, and leadership development. The program will emphasize learning support, professional development and socialization, and critical thinking. Students will learn integrated biomedical science content and its clinical application. To prepare for their future careers, students will have clinical exposure in select healthcare settings and will complete a master's research report under the guidance of a research mentor. Upon successful completion of the Master of Medical Studies degree, students have the opportunity to matriculate into COM-P, with the long-term goal to successfully complete medical school, and continue to serve the residents of Arizona as physicians. Alternatively, they will be equipped with the foundational skills and scientific knowledge necessary for the rigors of working in other fields of medicine or biomedical research, epidemiology, biostatistics, public health, biotechnology or research administration.

Programs of this nature have become more prevalent in medical schools across the U.S. Their critical goal is to address the shortage in physician diversity necessary to meet the challenges of healthcare disparities. Three such programs in which students earn a Master's degree are The University of Arizona, Pre-Medical Admission Program (P-MAP), sponsored by the College of Medicine - Tucson, the University of Pittsburgh-Biomedical Master's Program, offered by the University of Pittsburgh, and the Drexel Pathway to Medicine, offered by Drexel University, College of Medicine in Philadelphia, PA.

The Drexel Pathway to Medicine program and the University of Arizona, P-MAP program prepare students for the academic rigors of the medical school curriculum and offer admission to medical school based on successful completion of the program and meeting academic and professional benchmarks. Similarly, the Master of Medical Studies (Pathway Scholars Program) will prepare students for success in their subsequent professional studies or career in a field of medicine. The University of Pittsburgh- Biomedical Master's Program aims to prepare future health science professionals with the training necessary for successful application to medical, dental, or graduate school. Students are provided with specific course work, standardized test preparation, pre-clinical shadowing, and research and community service opportunities, which are similar in nature to the proposed MMS Program.

The curriculum for these programs incorporates science, leadership training, and education in professional patient interaction, similar to the proposed Master of Medical Science. In addition, the Master of Medical Science Program and the University of Pittsburgh program provide an opportunity for real life clinical experience. A point of divergence among comparable programs is the thesis (or culminating project) requirement. P-MAP requires students to complete a thesis for completion of the Master's degree, whereas Drexel's program and the University of Pittsburgh's program do not. The

MMS Program includes a requirement for ongoing effort on a scholarly project conducted throughout the year, which is accomplished with oversight by faculty mentors. The culmination of the project is presentation of a written thesis and oral presentation based on the scholarly project. Thus, thesis preparation is built into the program; consequently, there is less chance that students will be admitted to medical school and abandon their thesis requirement, thereby not completing their Master's degree.

Recruitment for all these programs have similar demographic foci. Drexel and the University of Pittsburg have no residency requirements for admission; however, P-MAP, like the MMS Program, recruits only Arizona residents.

III. PROGRAM REQUIREMENTS – list the program requirements, including minimum number of credit hours, required courses, and any special requirements, including subspecializations, subplans, theses, internships, etc. Use the comparison chart to explain how your requirements are similar to and different from the two programs at the two public peer institutions to which you compared your program in Section II.

Please see Appendix A for Comparison Chart

A. CURRENT COURSES AND EXISTING PROGRAMS -- list current courses and existing university programs which will give strengths to the proposed program. If the courses listed belong to a department that is not a signed party to this implementation request, please obtain the department head's permission to include the courses in the proposed program and information regarding accessibility to the course(s) for students in the proposed program.

Please note that the only graduate courses currently offered in Phoenix are those from Clinical Translational Sciences (CTS), which is an academic program of COM-Tucson. The MMS Program is distinct from all other Master's programs under development in Phoenix, which are overseen by the COM-P Graduate Training Office, not by individual departments. Therefore, MMS courses are listed under COM-P, whose Academic Affairs Department oversees the MMS program.

The credit hours listed for each of the courses below have been calculated using the Universities Unit of Credit Definition, which adheres to the Arizona Board of Regents Definition of a Unit of Credit.

Please see Appendix B for Proposed Curriculum Calendar and Appendix C for Course Learning Objectives.

<u>MEDP 601 – Introduction to Medical and Professional Health Studies (2 Credit Hours):</u> This is a name change from the existing course title "Introduction to Professional Studies in Health Sciences."

This course introduces students to the MMS curriculum, and orients them to coursework policies and campus environment. The course will prepare students for future coursework by examining their individual learning style and study strategies in preparation for the rigors of the program's curriculum. This course will orient the student to curricular objectives, milestone expectations, and available academic support. During this course, students receive their initial instruction in biomedical science, and become acquainted with technology tools, resources, and learning and assessment methods. Breast cancer pathophysiology and genomics are introduced as a way to expose curricular resources and testing tools. An overview of the academic curriculum, as well as activities and programs promoting participation in healthcare experiences, will be presented during the course.

Home Department: College of Medicine – Phoenix

MEDP 618 – Principles of Molecular Basis of Life and Disease (6 Credit Hours):

This is a name change from the existing course title "Fundamentals of Molecular Basis of Life and Disease."

This course provides a foundation in the biomedical and life sciences that will equip students with the tools necessary for the subsequent organ/system-based curriculum. The content provided is interdisciplinary, and provides an innovative approach to understanding genomic, molecular, cellular and systems-level function and dysfunction. The course includes weekly discussion sessions in which the students will critically evaluate an article or case presentation. These assignments are designed to aid in understanding the link between current medical practice and the underlying science. Each week students will meet with a small group facilitator for interactive discussion related to course content.

Home Department: College of Medicine – Phoenix

MEDP 620 – Principles of Cardiovascular Hematology (6 Credit Hours):

This is a name change from the existing course title "Fundamentals of Cardiovascular Hematology."

This course provides instruction in the basic and clinical sciences required for examination and treatment of disorders of Hematology and the Cardiovascular Systems, including: comprehensive studies of non-oncologic hematology, cardiovascular electrophysiology and cardiac arrhythmias, cardiac function, peripheral vascular disease, cardiovascular risk factors including lipid physiology and pathophysiology, valvular and coronary artery heart disease and blood pressure control. In addition to the above topics, aspects of pharmacology, imaging, public health, psychosocial aspects of illness, ethics, and health care transformations will be presented. Within the course, there are weekly discussion sessions in which the students will critically evaluate an article or case presentation. These assignments are designed to aid in understanding the scientific principles underlying current medical practice. Each week students will meet with a small group facilitator for interactive discussion related to course content.

Home Department: College of Medicine – Phoenix

MEDP619A – Leadership, Learning and Ethics I (3 Credit Hours):

This is a name change from the existing course "Leadership & Learning I."

This course is designed to develop students' interpersonal, intrapersonal, thinking and reasoning skills. The curriculum will focus on leadership development, problem solving, and academic success strategies and will cover the topics of ethics, cultural competence, service learning, advocacy, and health care systems. Students will develop a community service project to demonstrate leadership in the community. Within the course, there are weekly discussion sessions in which the students

will critically evaluate an article or case presentation. These assignments are designed to aid in understanding the ethical principles underlying cultural competence, service learning, heath advocacy and healthcare systems, and will be discussed with the group.

Home Department: College of Medicine – Phoenix

<u>MEDP619B – Leadership, Learning and Ethics II (3 Credit Hours):</u> This is a name change from the existing course "Leadership & Learning II."

This course is designed to develop students' interpersonal, intrapersonal, thinking and reasoning skills. The curriculum will focus on leadership development, problem solving, and academic success strategies and will cover the topics of ethics, cultural competence, service learning, advocacy, and health care systems. Students are required to develop a community service project to demonstrate leadership in the community. Within the course there are weekly discussion sessions which the students will critically evaluate an article or case presentation. These assignments are designed to aid in understanding the ethical principles underlying, cultural competence, service learning, health advocacy and healthcare systems, and will be discussed with the group.

Home Department: College of Medicine – Phoenix

<u>MED691A – Preceptorship I (1 Credit Hour – minimum of 45 hours in a healthcare setting)</u>: This is a course number and name change from the existing course MEDP 605A titled "Bio-Medical Career Exposure I."

This course consists of recurrent in-person, clinic and laboratory science experiences under the supervision of clinical instructors. The objective is to give students hands on clinical experience, working with physicians and patients in urban under-served areas. Students learn both healthcare delivery and office management principles in a healthcare setting. Students will participate in two reflective writing assignments delivered through D2L discussion boards. These assignments will aid in understanding the ethical principles underlying cultural competence, healthcare delivery, and public health. Active learning will facilitate the assignments; the students will complete readings and reflective writing after clinical exposure and prior to small group sessions with course directors.

Home Department: College of Medicine – Phoenix

MED691B – Preceptorship II (1 Credit Hour – minimum of 45 hours in a healthcare setting): This is a course number and name change from the existing course MEDP 605B titled "Bio-Medical Career Exposure II."

This course consists of recurrent in-person, clinic and laboratory science experiences under the supervision of clinical instructors. The objective of this coursework is to provide students hands-on clinical experience, working with physicians and patients in urban under-served areas. Students learn both healthcare delivery and office management principles in a healthcare setting. Students will participate in two reflective writing assignments. These assignments will aid in understanding the ethical principles underlying cultural competence, healthcare delivery, and public health. Active learning will facilitate the assignments; the students will complete readings and reflective writing after clinical exposure and prior to small group sessions with course directors.

Home Department: College of Medicine – Phoenix

B. SPECIAL CONDITIONS FOR ADMISSION TO/DECLARATION OF THIS MAJOR*-explain in detail the criteria to join this major, including GPA requirements, completion of courses prior to declaration, application process, interviews, etc. These conditions must be approved by faculty governance to be enforced.*

Admission Policy and Procedure:

The goal of the Master of Medical Studies Program is to prepare students for success in medical education and medical careers, and to allow successful students to matriculate into the COM-P as first-year medical students. For this reason, the academic requirements intentionally mirror COM-P admissions requirements. Applicants must meet all of the academic pre-requisites as outlined below.

The admissions process is managed by the College of Medicine – Phoenix Office of Admissions and Recruitment. Upon acceptance by the COM-P Admissions Committee, students complete their application in GradApp for acceptance into the Graduate College.

Admissions Selection Policy

All applicants must complete the application process by the specified deadlines in order to be considered for admission to the MMS Program. The selection of students accepted is by the Admissions Committee, and admission decisions are aligned with the mission and core values of COM-P. All decisions are final and not subject to appeal.

Requirements for Admissions

A. The COM-P Educational Policy Committee has established certain academic prerequisite courses which must be met before an applicant can be admitted to the institution. The following courses each must be completed with a minimum grade of C (2.0) no later than the Spring Semester/Quarter prior to matriculation to the MMS Program at COM-P.

Subject	Quantity and Discipline
Chemistry	1 - biochemistry course
	1 - general course from the following disciplines: general chemistry,
	organic chemistry, physical chemistry, biophysical chemistry, analytical
	chemistry
Biology	1 - physiology course (human or mammalian)
	2 - general courses from the following disciplines: general biology, cell
	biology, molecular biology, microbiology, genetics, anatomy, histology,
	virology
Behavioral and	2 - general courses from the following disciplines: cultural anthropology,
Social Science	economics, healthcare administration, psychology, sociology, public
	policy, family students, history, political science, social work, behavioral
	health
English	2 - general courses from the following disciplines: English composition,
	creative writing, technical writing, or other writing-intensive course
Mathematics	1 - general course above college algebra (i.e. statistic, calculus)
Humanities	1 - general course from the following disciplines: art, music, theater,
	speech and communication, philosophy, religion, gender studies, ethics,
	literature, English.

- B. The applicant must have earned an undergraduate degree prior to matriculation with a Grade Point Average (GPA) of 3.0 or higher. If under a 3.0 GPA, an applicant must earn 12 hours of post-baccalaureate or graduate coursework with a GPA at or above a 3.0. It should be noted that COM-P does not support or encourage an undergraduate college major in any particular area. Undergraduate majors in either the humanities or the sciences are equally acceptable and students are advised to follow their own particular desires when choosing and pursuing majors.
- C. The applicant must have completed the Medical College Admissions Test 2015 (MCAT 2015) and submit their composite score.
- D. The applicant must possess the capability to complete, with or without reasonable accommodations, the entire curriculum established by the COM-P.
- E. The applicant must obtain the State of Arizona Department of Public Safety's Fingerprint Clearance Card after acceptance but prior to matriculation.
- F. The applicant must be an Arizona resident who meets at least one of the following program specific criteria:
 - o Socioeconomically disadvantaged
 - First generation college attendee
 - From Rural Arizona
 - Member of a federally recognized American Indian Tribe
 - o Committed to serving the under-served and diverse populations of Arizona

Initial Screening Process

The Office of Admissions and Recruitment staff conducts a preliminary screening (United States citizenship or permanent resident status, Arizona resident status, a scored Medical College Admission Test (MCAT) from within the past three years, academic qualifications, and program specific criteria), prior to the review for interview selection.

Selection for the Interview

Policy: The Admissions Committee Advisory Group (Dean, Vice Dean-Academic Affairs, Associate Dean-Student Affairs, Assistant Dean-Admissions and Recruitment, and Chair of the Admissions Committee) select a group of senior administrators and faculty to be confirmed by the Admissions Committee to review applications for interview selection. These individuals are selected based on experience, ability to apply the characteristics of the holistic review, availability and willingness to serve.

Procedure: This team reviews the applications based on the experiences, attributes, and metrics of each candidate and determines their competitiveness for an interview based on the application interview rubric. While GPA and MCAT scores are one component, equally important components include diversity, personal achievement, motivation for medicine, and program criteria.

The MMS review team consists of the Interim Assistant Dean for Admissions and Recruitment, Chair of the Committee, and up to four senior faculty members or administrators. Members must have a strong understanding of the application process and diverse applicant characteristics, as well as a deep knowledge of what it takes academically and personally to be a successful physician.

Personal Attributes:

As in all decisions made for admission to COM-P, the following attributes are utilized in the admission decision process:

Cooperative	Enduring	Personable
Able to lead and follow	Resilient	Communicative
Team player	Adaptable	Professional
Able to give and receive feedback	Self-aware	Patient
Culturally competent	Non-judgmental	Self-motivated learner
Diverse in life experiences	Altruistic	Service-oriented

Invite for Interview

Interview Day – Applicant Visit Day (AVD)

The Applicant Visit Day is a mandatory experience that completes the application process for MMS candidates. The MMS Program has two designated Applicant Visit Days during which 33 MMS applicants visit campus. Interviewees complete a standardized Multiple Mini-Interview (MMI), a series of short, carefully timed interview scenario/questions, aimed to elicit multiple samples of an applicant's ability to think on their feet, to critically appraise information, and to communicate their ideas. The applicants also participate in meals with current student ambassadors, student services and financial aid presentations, tours and a presentation by the MMS Program Director.

Admissions Committee

For MMS Program selection, the MMS Admissions Subcommittee conducts an initial file review and deliberation of assigned applications, post-interview. The Chair of the Admissions Committee is a voting member of the MMS Admissions Subcommittee allowing continuity across the COM-P Admissions Committee and its subcommittees.

MMS Admissions Subcommittee recommendations for a maximum of 10 acceptances, with additional qualified applicants on a wait list, are forwarded to the Admissions Committee for final decision.

C. NEW COURSES NEEDED -- list any new courses which must be added to initiate the program; include a course prefix, number, title, catalog description and number of units for each of these courses.

MEDP 608 – Principles of Physical Examination (2 Credit Hours):

The goals of this course are to introduce students to foundational basis of medical terminology, physical exam, medical interview and medical professionalism along with the integration of these skills with scientific principles necessary for patient interaction in a clinical setting. Students develop critical thinking and communication skills. The curriculum will include cultural competence and address barriers to effective communication. Students will practice their foundational clinical

skills on standardized patients (i.e., actors) in a controlled environment (i.e., COM-P doctoring suites). A physician monitors student/patient interactions, and feedback is provided for professional development purposes. This course prepares students for healthcare delivery to patients within a clinical setting.

Home Department: College of Medicine – Phoenix

MEDP 909 – Master's Research Report (2 Credit Hours):

Students learn critical inquiry, research design and methods, teamwork, information literacy, communication, lifelong learning and research ethics. Students develop their interest in clinical or translational research with a project advisor who assists in pairing each student with a research mentor. The student and mentor work collaboratively on the chosen Scholarly Project. This course culminates in a prospectus and presentation to a panel prior to completion of the program. This Panel will consist of the COM-P Scholarly Project Director, MMS Program Director, and one additional faculty member.

Home Department: College of Medicine – Phoenix

MEDP 615A - Principles of Organ Systems I (3 Credit Hours)

The purpose of this course is to provide the student with a basic understanding of pathophysiology as it relates to the change from normal physiological functioning of the various systems of the human body. Emphasis is on interrelationships among organ systems in deviations from homeostasis. Adaptation and injury at the cellular level will also be explored and then expanded to investigate the major disorders associated with the organ systems. The use of diagnostic tests and management will be introduced as related to the pathophysiology of diseased states. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology. Course topics include etiology, physical signs and symptoms, prognosis, and complications and management of the nervous system and musculoskeletal system. Flipped classroom and small group tutorial interaction are utilized as instructional and delivery method.

Home Department: College of Medicine – Phoenix

MEDP 615B Principles in Organ Systems II (2 Credit Hours)

The purpose of this course is to provide the student with a basic understanding of pathophysiology as it relates to the change from normal physiological functioning of the various systems of the human body. Emphasis is on interrelationships among organ systems in deviations from homeostasis. Adaptation and injury at the cellular level will also be explored and then expanded to investigate the major disorders associated with the organ systems. The use of diagnostic tests and management will be introduced as related to the pathophysiology of diseased states. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology. Course topics include etiology, physical signs and symptoms, prognosis, and complications and management of the gastrointestinal system, reproductive system, cardiovascular system, and pulmonary and renal systems, Flipped classroom and small group tutorial interaction are utilized as instructional and delivery method.

Home Department: College of Medicine – Phoenix

D. REQUIREMENTS FOR ACCREDITATION -- describe the requirements for accreditation if the program will seek to become accredited. Assess the eligibility of the proposed program for accreditation.

Not applicable

IV. STUDENT LEARNING OUTCOMES AND ASSESSMENT

STUDENT OUTCOMES -- describe what students should know, understand, and/or be able to do at the conclusion of this program of study.

The following are the selected program objectives that the student should meet.

Medical Knowledge (MK)

Students apply problem solving and analytical thinking skills to problems in basic science and clinical medicine. They will begin to demonstrate knowledge about the (1) established and evolving core of biomedical sciences, (2) application of biomedical sciences to patient care, and (3) investigatory and critical thinking approaches.

- Demonstrate knowledge of the molecular, cellular and biochemical mechanisms of homeostasis.
- Apply principles of epidemiology and statistics to patient care.
- Recognize patient-focused care that considers a patient's diversity.
- Analyze, explain and discuss medical knowledge as it applies to effective patient care.

Critical Appraisal and Quality Improvement (CAQI)

Students are introduced to the practice medicine within the context of society and its expectations. They use evidence-based approaches, demonstrating proficiency with information retrieval and critical appraisal of the medical literature to interpret and evaluate experimental and patient care information. They understand the limits of their own personal knowledge, remediate inadequacies to remain current, and integrate increased self-knowledge into their daily activities.

- Compare individual patient outcomes to larger studies of similar patient populations.
- Demonstrate an awareness of and practice ongoing reflection with legal, ethical and/or social issues related to the standards of medical practice through ongoing reflection.
- Use informatics to access and use current, relevant, and innovative educational materials from reliable sources.
- Critically assess articles in professional journals and other educational resources.

Interpersonal and Communication Skills (ICS)

Students demonstrate interpersonal and communication skills that result in effective information exchange, cooperation, and collaboration with other students, patients, patients' families, and professional associates.

- Elicit information using patient-centered listening skills.
- Communicate using effective nonverbal, explanatory, questioning and writing skills.
- Document and present patient data and clinical information in an organized, accurate, timely and understandable manner.

Professionalism (P)

Students exemplify a professional character that is committed to carrying out professional responsibilities, adhering to ethical principles, and demonstrating sensitivity to diverse patient populations. They are altruistic and compassionate in caring for patients and at all times act with integrity, honesty, and respect for patients' privacy and for the dignity of patients as persons. Students are advocates for improving access to care for everyone. They are committed to working collaboratively with the health care team, and acknowledge and respect the roles of other health professionals.

- Demonstrate sensitivity, honesty and compassion, with insight and understanding of human emotions and responses, including difficult conversations (i.e. death, end-of-life, adverse events, etc.)
- Respect the individual diversity of patients, colleagues, and faculty.
- Respect the confidentiality, privacy, dignity of patients, peers and faculty.
- Show integrity and accountability in all interactions with patients, their families and professional colleagues.
- Demonstrate a commitment to uphold ethical principles.
- Maintain a teachable attitude, including giving and receiving constructive feedback, being present and accountable, prepared and engaged.

Societal Awareness and Responsiveness (SAR)

Students demonstrate awareness of and responsiveness to the large context and system of health care.

- Discuss appropriate ways to advocate for quality patient care and access.
- Consider the impact of coordination of care on health outcomes and system performance.
- Recognize the physician's and other health professionals' roles and responsibilities in providing evidence- based preventive services to individuals and populations.

Patient Care (PC)

Students obtain accurate histories and perform skillful, comprehensive and focused patient examinations. They will begin to develop appropriate differential diagnoses and patient care management plans while learning to care for diverse patients. They will begin to learn to select, perform and accurately interpret the results of laboratory tests and clinical procedures in making patient care decisions, and use appropriate diagnostic and treatment technologies in providing patient care.

- Obtain an accurate history and perform both complete and focused physical examinations that result in the best patient care possible.
- Provide appropriate care for patients from diverse backgrounds.
- Effectively collaborate and communicate with members of the healthcare team to provide optimal, interprofessional patient-centered care.

A. STUDENT ASSESSMENT -- provide a plan for assessing intended student outcomes while the students are in the program and after they have completed the degree.

Successful completion of the program to earn a Master of Medical Studies is achieved by the following:

- Student must pass each course and maintain a 3.0 GPA (or higher).
 - The following courses will be assessed by letter grade:
 - MEDP 601: Introduction to Medical and Professional Health Studies
 - MEDP 618: Principles of Molecular Basis of Life and Disease
 - MEDP 620: Principles of Cardiovascular-Hematology
 - MEDP 615A: Principles of Organ Systems I
 - MEDP 615B: Principles of Organ Systems II
 - The following courses will be assessed by pass/fail:
 - MEDP 691A: Preceptorship I
 - MEDP 691B: Preceptorship II
 - MEDP 619A: Leadership, Learning, and Ethics I
 - MEDP 619B: Leadership, Learning, and Ethics II
 - MEDP 608: Principles of Physical Examination
 - MEDP 909: Scholarly Project Master's Report

***Courses assessed by pass/fail utilize a behavioral competency assessments shown in Appendix D. Students receive a "mid" evaluation (formative) and an "end" evaluation (summative) in each of these courses.

The primary measure of success is indicated by completion of MMS degree. These students may decide to matriculate into medical school if they fulfill all other requirements, or to pursue another medical career. An alternative measure of success is completion of medical school and residency, especially for those students who ultimately direct their careers toward the practice of primary care or specialty medicine in Arizona. During our 11 years as a branch medical school, and more recently as an independently accredited College of Medicine, the College of Medicine – Phoenix has had a 100% success rate for matching its graduating students into accredited residency programs.

V. STATE'S NEED FOR THE PROGRAM

A. HOW DOES THIS PROGRAM FULFILL THE NEEDS OF THE STATE OF ARIZONA AND THE REGION? --INCLUDE AN EXPLANATION OF THE PROCESS OR SOURCE FOR ARRIVING AT ALL NUMBERS USED IN THIS SECTION

1. IS THERE SUFFICIENT STUDENT DEMAND FOR THE PROGRAM? --.

Since its inception four years ago, the existing Professional Studies in Health Sciences Certificate has received an average of 150 applications per year. We expect the MMS Program will receive at least as many applications each year, demonstrating sufficient demand for a program of this nature.

2. What is the anticipated student enrollment for this program? (Please utilize the following tabular format).

Each year, a maximum of 10 students are accepted into the Program based on the available space for successful students matriculating into medical school. In each year of the existing Professional Studies in Health Sciences Certificate, all 10 students each year have completed the requirements and matriculated into medical school.

5-YEAR PROJECTED ANNUAL ENROLLMENT								
	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year			
Number	10	10	10	10	10			
of Majors	of Majors							

3. What is the local, regional and national need for this program? Provide market analysis data or other tangible evidence of the need for and interest in this program This might include results from surveys of current students, alumni, and/or employers or reference to student enrollments in similar programs in the state or region. Include an assessment of the employment opportunities for graduates of the program during the next three years.

According to a new study entitled "The Complexities of Physician Supply and Demand: Projections from 2015 to 2030¹" from the Association of American Medical Colleges (AAMC), the United States will face a shortage of between 40,800 and 104,900 physicians by 2030. The numbers of new primary care physicians and other medical specialists are not keeping pace with the demands of our growing and aging population. The same document addresses demands by patient race and ethnicity, which the MMS Program will address as it, targets applicants from under-served communities.

1. https://aamc-

black.global.ssl.fastly.net/production/media/filer_public/a5/c3/a5c3d565-14ec-48fb-974b-99fafaeecb00/aamc_projections_update_2017.pdf

4. Beginning with the first year in which degrees will be awarded, what is the anticipated number of degrees that will be awarded each year for the first five years? (Please utilize the following tabular format).

PROJECTED DEGREES AWARDED ANNUALLY					
	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
Number of	10	10	10	10	10
Degrees					

IV. APPROPRIATENESS FOR THE UNIVERSITY -- Explain how the proposed program is consistent with the University mission and strategic direction statements of the university and why the university is the most appropriate location within the Arizona University System for the program. Please explain how this proposed program is consistent with the College strategic plan. In line with the University of Arizona's mission, vision, and strategic direction, the MMS Program strives to improve the prospects of its students and enrich the lives of the people of Arizona by training exemplary individuals, biomedical scientists, and medical leaders who reflect the communities from which they come. Through engagement, collaboration, innovative educational methods, and partnerships within the local community, graduates of the MMS Program will have the tools to positively impact their patients and contribute to providing optimal healthcare to Arizona communities. The University of Arizona offers the only two medical training sites in the Arizona University System capable of such training, which is critical to meet the future needs of our state.

The recent AAMC¹ study noted that addressing race and ethnicity factors are critical elements of the physician workforce. This is consistent with the University of Arizona Health Sciences Health Disparity Advisory Council report to recruit and mentor healthcare professionals and research scientists from racial and ethnic minority groups and socio-economically disadvantaged groups. Using a holistic approach, students selected for this program come from disadvantaged and vulnerable backgrounds reflecting such groups that are consistent with the College of Medicine – Phoenix's strategic plan, which holds diversity as a core value central to its mission. Patterns of health care use and delivery differ systematically by patient race and ethnicity, reflecting underlying differences in age distribution, disease prevalence, health-related behavior such as obesity and smoking, economic factors including medical insurance coverage and household income, possible cultural differences in care utilization, and supply-related access barriers.

V. EXISTING PROGRAMS WITHIN THE ARIZONA UNIVERSITY SYSTEM

A. Arizona University System -- List all similar programs at the same academic level (Bachelor's, Master's, Doctoral) currently offered in the Arizona University System. (Please utilize the following tabular format).

	Program Name	Degree Type	Number of Students Enrolled	LOCATION University & Site	PROGRAM ACCREDITATION? YES/NO
1	Pre-Medical	Master's Degree	12	University of	NO
	Admissions	in Cellular		Arizona, College of	
	Pathway-	Molecular		Medicine Tucson	
	(P-MAP)	Medicine			

Curricular Affairs (and the Graduate College for graduate programs) will determine if you are required to complete a comparison chart to discuss the ways in which the proposed program differs from University of Arizona programs.

VI. EXPECTED FACULTY AND RESOURCE REQUIREMENTS

A. FACULTY

1. Current Faculty -- List the name, rank, highest degree, primary department and estimate of the level of involvement of all current faculty members who will participate in the program. If proposed program is at the graduate level, also list the number of master's

theses and doctoral dissertations each of these faculty members have directed to completion. Attach a brief vita for each faculty member listed.

1. *Maria Manriquez, MD, FACOG*; Professor (Director, Master of Medical Studies Program and Interim Associate Dean for Clinical Curriculum)

Maria Manriquez, MD, completed medical school at The University of Arizona College of Medicine - Tucson in 1998, and residency training in obstetrics and gynecology at Banner Good Samaritan in 2002. She is the interim Associate Dean for the Clinical Curriculum and the Director of the Pathway Scholars Program (Master of Medical Studies Program) for The University of Arizona, College of Medicine Phoenix. She holds the academic title of Professor at The University of Arizona College of Medicine -Phoenix. She is staff/faculty at Maricopa Integrated Health Systems (MIHS). Dr. Manriquez is an active fellow of the American College of Obstetricians and Gynecologist and serves as their representative to the Council of Faculty and Academic Societies for the AAMC. She also serves on the Council on Resident Education in Obstetrics and Gynecology (CREOG) Education Committee and will be program chair for 2017-2020. Dr. Manriquez is a current examiner for the American Board of Obstetrics and Gynecology.

Dissertation Advisement: 8

2. *Maricela P. Moffitt, MD, MPH, FACP*; *Professor (Director, Doctoring Curriculum, and Principles of Physical Examination)*

Dr. Moffitt completed medical school at the University of Texas Health Science Center in Houston in 1986. She completed residency training in Internal Medicine at the University of Texas in Houston in 1989 and was selected as a chief resident in 1990. She joined the faculty in the Department of Medicine at Maricopa Integrated Health System (MIHS) in June of 1990 and remained there until 2005. She has held many academic and administrative positions including: Clerkship Director, Associated Program Director in Internal Medicine Residency, Co-Program Director Med-Peds Residency, and Director of Academic Affairs. During her tenure at MIHS, she was elected president of the Medical Staff and served as a medical staff officer from 1998-2003.

Dr. Moffitt obtained a Master's in Public Health from the University of Arizona in the Charter Class 1993-1994. As part of an internship project, she responded to an RFP from the CDC. She subsequently received a five-year grant supporting clinical trials of new methods for the treatment of tuberculosis she participated in the CDC's Tuberculosis Trials Consortium (TBTC.) She also served as the Chief Medical Officer, TB Control and as Deputy State Tuberculosis Control Officer.

Currently, Dr. Moffitt is the Director of the Doctoring Curriculum at the University of Arizona College of Medicine - Phoenix. She holds the Academic rank of Professor of Medicine. She has received numerous teaching and service awards. Clinically she has practiced and taught Internal Medicine as faculty at MIHS and at the Carl T. Hayden VA in Phoenix as a Hospitalist.

Dissertation Advisements: 1

3. *Maria Castro, MD*; *Clinical Assistant Professor (Assistant Director for Doctoring Curriculum and Principles of Physical Examination)*

Dr. Maria D. Castro received her MD from The University of Michigan in 1990. She is the Assistant Director of the Doctoring Program at the College of Medicine – Phoenix, and Clinical Assistant Professor in the Family, Community and Preventive Medicine Department.

4. Matthew D. McEchron, PhD; Professor (Director, Scholarly Projects)

Dr. McEchron received his PhD from the Department of Psychology at the University of Miami, FL with a concentration in Behavioral Neuroscience. He received his postdoctoral training in the Department of Cell and Molecular Biology at the Northwestern University Medical School. Starting in 2000, he established an active NIH funded laboratory at the Pennsylvania State College of Medicine studying neural networks, learning and memory, hippocampal function, and developmental iron nutrition.

Dr. McEchron moved his research laboratory to the University of Wyoming in 2008. There he served as the Director of WWAMI Medical Education and simultaneously as a Regional Assistant Dean at the University of Washington School of Medicine. As part of the WWAMI team he facilitated activates in medical student scholarly research and rural medical training. He also directed and taught the Nervous System course for the first year WWAMI medical students in Wyoming.

Dr. McEchron's strong interest in medical education and medical research led him in 2013 to join The University of Arizona College of Medicine – Phoenix. Here he serves as a Professor and the Director of Scholarly Projects for the Department of Academic Affairs

Dissertation Advisements: 3

5. Stephen Stapczynski, MD; Professor (Scholarly Project Advisor)

Dr. Steve S. Stapczynski received his MD from The University of California – Los Angeles in 1976. He is the Scholarly Project Advisor for the Pathway Scholars Program.

Dissertation Advisements: 3

6. Jonathan Cartsonis, MD; Associate Professor (Co-Director of Preceptorship I & II)

Dr. Jonathan Cartsonis received his MD from The University of Arizona College of Medicine – Tucson in 1993. He is the Director of the Rural Health Professions Program and Associate Professor of the Family, Community and Preventative Medicine Department at The University of Arizona College of Medicine – Phoenix. He is also the co-director for the Biomedical Career Exposure block for the Pathway Scholars Program.

Dissertation Advisement: 1

7. Kathleen Brite, MD; Clinical Assistant Professor (Co-Director of Preceptorship I & II)

Dr. Kathleen Brite is a Clinical Assistant Professor for the Department of Family Community and Preventive Medicine, and the Director of the Family, Community and Preventative Medicine Clerkship. She received her medical degree from The University of Arizona and completed her residency in family medicine at Banner Good Samaritan, where she served as chief resident her final year. As a physician, Dr. Brite participates in the CCE program mentoring first and second year medical students, and is the site Director for third year clerkship students at Wesley Clinic. Dr. Brite is a member of AAFP, and ASCCP and actively participates in university committees.

Dissertation Advisements: 9

8. *Kurt Gustin, PhD*; *Associate Professor (Director of Principles of Molecular Basis of Life and Disease)*

Dr. Kurt Gustin, has been with The University of Arizona College of Medicine – Phoenix since 2008, where he is an Associate Professor in the Department of Basic Medical Sciences and the Director of the Molecular Basis of Life and Disease block in the medical school curriculum. H He has a PhD in microbiology and immunology from the University of Michigan, and did postdoctoral work at Stanford University.

Dr. Gustin recently received a research grant from the National Institutes of Health for his studies examining how humans defend themselves against viral infections. He was also awarded an NIH R03 grant from the National Institute of Allergy and Infectious Diseases for his study, "Role of nuclear pore protein in host transcription response to viral infection."

Dissertation Advisements: 4

9. Elaine Niggemann, MD, MSN; Associate Professor (Director of Principles of Cardiovascular Hematology and Co-Director for Introduction to Medical and Professional Health Studies course)

Dr. Niggemann received her MD from The University of Arizona – Tucson in 1981, where she completed Internal Medicine Residency in 1984, and then completed a Cardiovascular Medicine Fellowship at the University of Texas Southwestern Medical Center, Dallas, TX 1984-1987. Dr. Niggemann practiced cardiology in Scottsdale, AZ from 1987-2013, then was recruited to join the faculty at The University of Arizona College of Medicine – Phoenix in 2007. She currently serves as Block Director in the Introduction to Medicine and Cardiovascular-Hematology blocks and a Facilitator in Longitudinal Case-Based Instruction. She is also Block Director for Fundamentals of Cardiovascular-Hematology and Introduction to Medical and Professional Health Studies.

10. Louis Schoettle, PhD; (Co-Director of Principles of Organ Systems I & II, Co-Director, Leadership, Learning, & Ethics I and II)

Dr. Louis N. Schoettle received his PhD in Microbiology at Arizona State University in 2017. He has been a Graduate Teaching Assistant for Arizona State University since 2012

in courses like Introductory Microbiology Laboratory, Fundamental Immunology and Experimental Immunology Laboratory; and was a Graduate Research Assistant from 2012 – 2014. He has been an instructor for The Princeton Review since 2014.

11. Glen Fogerty, PhD; (Interim Assistant Dean, Admissions & Recruitment, Co-Director of Introduction to Medical and Professional Health Studies course)

Dr. Fogerty earned his doctorate in Educational Leadership and Policy Studies from Arizona State University and his Bachelor of Science degree from Georgia State University. Prior to joining the University of Arizona family, Dr. Fogerty held administrative appointments at Northwestern University, Arizona State University, and Arizona Summit Law School, where he has served as Dean of Admissions, Dean of Graduate Programs and has been a member of the senior leadership advisory group at each institution. Additionally, Dr. Fogerty gained international higher education experience in Europe, Asia, and South America implementing multi-campus programs for the Apollo Group. Dr. Fogerty's commitment to education and students spans more than 20 years. His teaching roles have included faculty appointments at Arizona State University and Northwestern University.

2. Additional Faculty -- Describe the additional faculty needed during the next three years for the initiation of the program and list the anticipated schedule for addition of these faculty members.

No additional faculty needed.

- 3. Current Student and Faculty FTEs -- Give the present numbers of Student FTE (identify number by graduate and undergraduate students) and Faculty FTE in the department or unit in which the program will be offered.
 - 10 Student FTE
 - Faculty FTE
 - Program Director, 0.5 FTE
 - Principles of Organ Systems Faculty, 0.5 FTE
 - 2 Preceptor Co-Directors, 0.1 FTE each
 - Program Director, 0.5 FTE
 - Principles of Organ Systems Faculty, 0.5 FTE
 - 2 Preceptorship Co-Directors, 0.1 FTE each
- 4. Projected Student and Faculty FTEs -- Give the proposed numbers of Student FTE and Faculty FTE for the next three years in the department or unit in which the program will be offered.
 - 10 Students (per year), 1.0 FTE
 - 4 Faculty (per year), 1.2 FTE

B. LIBRARY

1. Acquisitions Needed -- Describe additional library acquisitions needed during the next three years for the successful initiation of the program.

The Arizona Health Sciences Library (AHSL) located in the Health Science Education Building at the College of Medicine – Phoenix contains 13,700 sq. ft. of space with 10 group study rooms of various sizes, 21 study carrels, 30 public workstations and a presentation practice studio. The Library services faculty, staff and students from the University of Arizona, focusing on biomedicine, pharmacy and public health. The library provides access to over 9,700 online journals and more than 350 databases, most remotely accessible. More than 2,300 e-books are also available remotely, as well as more than 90,000 print books in Tucson available within several days, and more than 300 curriculum-based print holdings in Phoenix. These resources will meet the needs of the proposed Program completely; no additional library acquisitions will be needed.

C. PHYSICAL FACILITIES AND EQUIPMENT

1. Existing Physical Facilities -- Assess the adequacy of the existing physical facilities and equipment available to the proposed program. Include special classrooms, laboratories, physical equipment, computer facilities, etc.

Conference and classroom facilities, laboratory space, computer facilities and study space are available within the Health Science Education Building with excellent quality audiovisual facilities for all proposed courses. Additional classrooms and meeting rooms are available in the adjacent Arizona Biomedical Consortium 1 (ABC1) and the Biomedical Sciences Partnership Buildings.

2. Additional Facilities Required or Anticipated -- Describe physical facilities and equipment that will be required or are anticipated during the next three years for the proposed program.

Existing facilities are adequate, no additional resources necessary.

D. OTHER SUPPORT

- 1. Other Support Currently Available -- Include support staff, university and non-university assistance.
 - Assistant Director, 1.0 FTE
 - Learning Specialist, 0.5 FTE
 - Administrative Associate, 1.0 FTE
- 2. Other Support Needed, Next Three Years -- List additional staff needed and other assistance needed for the next three years.

No additional staff or other assistance will be required

VII. FINANCING

A. SUPPORTING FUNDS FROM OUTSIDE SOURCES -- List.

- APS \$100,000
- United Healthcare \$100,000
- BlueCross BlueShield \$100,000
- Arizona Community Foundation \$100,000
- Private Donations \$2,000 annually

Above donors identified, currently in year four of donation commitments. Ongoing development is occurring.

B. BUDGET PROJECTIONS FORM -- Complete the budget projections form describing the current departmental budget and estimating additional costs for the first three years of operation for the proposed program. Please note that these costs for each year are incremental costs, not cumulative costs. Include in this budget the anticipated costs for support for instruction, administration of the program, graduate students, marketing, the support discussed in Section VI-D.2, and any other costs that will be needed.

Please see Appendix E

VIII. OTHER RELEVANT INFORMATION

None

IX. REQUIRED SIGNATURES:

Managing Unit Administrator: Maria Manriquez, M.D	D., Director and Interim Associate Dean, UACOMP (name and title)
Managing Administrator's Signature:	Date: August 9, 2017
Managing Unit Administrator: Cheryl O'Malley, M.D	., Interim Vice Dean Academic Affairs, UACOMP (name and title)
cher grows	lymo
Managing Administrator's Signature:	Date: August 9, 2017
Dean's Signature:	Date:
Dean's Signature:	Date:
All programs that will be offered through distance l does not indicate a commitment to invest in this pro	learning must include the following signature. The signature of approval ogram. Any potential investment agreement is a separate process.
Joel Hauff, Associate Vice President of Student Affairs	s & Enrollment Management/Academic Initiatives and Student Success
Signature:	Date:
All programs that will be offered fully online must i indicate a commitment to invest in this program. A	include the following signature: The signature of approval does not ny potential investment agreement is a separate process.
Vincent Del Casino Jr., Vice Provost for Digital Learn	ing and Associate Vice President of Student Affairs & Enrollment Management
Signature:	Date:

Note: In some situations, signatures of more than one unit head and/or college dean may be required.

Comparable Curricula at Peer Institutions for Graduate Curriculum Requests

Please use this chart to provide comparison program data to support implementation requests for new graduate programs, degrees and certificates at the University of Arizona. Please attach as appendices detailed curricula (typically available from a peer university program's website).

Program Name/University	Proposed UA Program	UA P-MAP Program	Drexel Pathway to Medical School (DPMS)	University of Pittsburgh- BioMedical Master's Program
Currently enrolled students	10 Students		40 Students	i i vgi am
Number of Faculty for program Focus	11 Master of Medical Studies Program is for Arizona residents		The Drexel Pathway to Medical	4 Faculty Members The University of Pittsburgh Biomedical Master's Program
	 who desire to pursue a career in medicine. The MMS Program is designed for students who have experienced unique or greater than average challenges in preparing to become competitive medical school applicants. Consideration will be given to Arizona Residents that are: Socioeconomically disadvantaged. First generation college attendees. From rural Arizona. Members of Federally recognized American Indian Tribes. Committed to serving the under-served and diverse populations of Arizona 		 School program is designed for students who want to attend Drexel's MD program and have taken traditional premedical coursework (one year of biology, chemistry, organic chemistry and physics with a lab) and the MCAT before applying. Applicants who are usually accepted into the program include: Students from socially or economically disadvantaged backgrounds Students who are underrepresented minorities in the health professions Students who have MCAT scores from the 27th percentile or better in each section or overall Students who have an undergraduate science or overall GPA of 2.9 or better. 	 (BMP) is a flexible one- to two-year Master of Science degree program designed for students interested in professional health careers or biomedical research who desire additional training, mentoring, and advising to strengthen their academic and professional credentials for admission to health professional schools or for entry in the biomedical workforce. Information on tuition, fees and other financial matters can be found here. The main features of the program are: * Active-learning course work designed to prepare students for admission and the first year of medical, dental, or graduate school. * Personalized career coaching and advising tailored to the specific strengths and goals of each student * Preparation for standardized admission tests (MCAT, GRE, DAT) * Elective pre-clinical and research training * Outstanding faculty with award-winning teaching and training of medical, dental, and graduate students * The BMP is open to U.S. and international students of all ethnic and cultural backgrounds, to individuals with diverse sexual orientations. The program will

Starting framework	The purpose of the Master of Medical Studies Program is to deliver an arduous curriculum that will better equip students with foundational skills and basic scientific knowledge necessary for the rigors of medical education and working in the medical field. The curriculum will include basic biomedical science, evidence based medicine, research design, critical analysis of research publications, hands-on training in clinical assessment skills, clinician preceptorship in healthcare settings, and leadership development. The program will emphasize learning support and development, professional socialization, and critical thinking. Students will learn basic biomedical science content and its clinical application. To prepare for their future careers, students will have clinical exposure in select healthcare settings and complete a research master's report under the guidance of a research mentor.	 Demonstrate medical sciences knowledge and competencies comparable to first year medical school curriculum Develop the ability to be creative, critical, and analytical thinkers Demonstrate knowledge base and skill set compatible with success in health professional programs Develop competencies with statistics, data analysis, and interpretation Develop the ability to critically read and analyze scientific literature and understand its impact on medicine and society Demonstrate their ability to communicate effectively Build the foundations of a professional network Demonstrate professionalism and technical competencies required in the broad areas of observation, motor function, behavioral and social skills as related to effective medical practitioners 	enhance opportunities for enrollment and retention of individuals from disadvantaged groups and will provide accessibility to the BMP educational facilities to individuals with disabilities. The <u>curriculum</u> of the Biomedical Master's Program (BMP) has been designed to supplement, improve, and extend preparation for a career in biomedical sciences. The program emphasizes the development of thinking skills rather than the distribution of information. This will be done by covering a subset of key aspects of biomedical science topics emphasizing analytical, evaluative and scientifically creative thinking skills that will prepare our students for advanced biomedical training. The <u>curriculum</u> is designed to achieve two major objectives: * Improve student preparation *Promote the development of individual and collaborative work and study habits appropriate for the health sciences These goals will be achieved through an integrated series of 12 active-learning courses, exceptional experiential opportunities, and dedicated one- on-one advising and mentorship that will enable students to
		practitioners	that will enable students to successfully apply to and perform well in professional or graduate health science schools.
Methodological Approaches	Students pair with a faculty mentor with similar interests and goals. The student and mentor submit a project prospectus. Once institutional compliance is fulfilled (i.e., IRB or IACUC), the student begins the research project. Students are able to choose projects that may include laboratory, translational or clinical research on topics such as neuroscience, cancer biology, infectious disease, cardiovascular disease, developmental disorders, immunology or toxicology.		
Exemplary Question Sample Course(s)		Ger Anne P. F.	
or attach detailed curricula, as above	See Appendix C	See Appendíx F	See Appendix G

Target Careers	Medical Doctor, Biomedical			Biomedical Research
	Research, Research Science,			
	Biostatistics, Public Health,			
	Biotechnology, and or University			
	Administration/Research			
Total Units	31		47	32
Required				
Pre-Admissions	To fulfill the requirements for		Admission Requirements/Prome quisites:	Pitt BMP applicants must have:
expectations (i.e.	following:		In order to fulfill the basic	* Baccalaureate degree from an
academic training	• Arizona residency		requirements for matriculation at	accredited institution
to be Completed	 Arizona residency Have taken the most recent 		Drexel University College of	
Prior to	• Have taken the most recent MCAT exam within three		Medicine, applicants must:	* Completed health professional
Admission)	vears of intended		 Have a bachelor's degree from 	school prerequisites prior to
	matriculation into medical		an accredited U.S. college or	matriculation
	school.		university, or an international	*Minimum GPA of 3.2
	• Have a cumulative GPA of		equivalent.	Minimum Of H of 5.2.
	3.0 or higher		• Be a citizen or permanent	* Standardized tests (MCAT, DAT,
	• Bachelor's degree must be		resident of the U.S.	and/or GRE) are not a prerequisite;
	conferred prior to starting		• Have taken a year of biology,	however, the scores of tests taken
	 Completed prerequisite 		chemistry, physics and organic	prior to the application should be
	courses including:		chemistry, including respective	reported. An application fee of \$50
	◦ 1 Biochemistry		laboratory sections. In	paid through the online application
	\circ 1 additional chem		addition, potential applicants	is iequiieu.
	• Human/Ivlammalian		are strongly encouraged to take	
	Additional Biology		biology biochemistry or other	
	 Additional Biology 2 Behavioral Science 		higher level science courses as	
	courses from the		well as a variety of liberal arts	
	following: cultural		and social science courses,	
	anthropology, economics,		such as philosophy, ethics,	
	health care administration,		history, psychology and other	
	psychology, sociology,		humanities classes.	
	public policy, family		• There is no minimum required	
	studies, history, political		GPA requirement, but we like	
	science, social work, or		to see applicants with a 2.9 or	
	behavioral health		better science and cumulative	
	• 2 Writing-intensive		GPA.	
	a 1 Math course more		• Have taken the MCAT. While	
	advanced than college		we do not have a minimum	
	algebra		applicants have generally	
	1 humanities course from the		scored in the 27th percentile or	
	following: art, music theater,		better overall and in each	
	speech and communication,		section.	
	philosophy, religion, gender		 A completed application 	
	studies, ethics, literature, etc.		includes MCAT scores.	
			transcripts, letters of	
			evaluation/recommendation, an	
			essay and a \$75 application	
			fee. Please see the application	
			materials section below for	
			more information.	
Research	Depending on selective research			
Methods, Data	interest, the research design			
Analysis, and	(methods, data analysis and			
Methodology	methodology) may vary.			
Requirements	Systematic reviews are strongly			
- Internchin	Ves- students will spend a		No	Yes- This self-directed course
Practicum	minimum of 90 documented			guided by BMP faculty mentors
Annlind Courses	hours participating in a			requires documented participation
Applieu Course	preceptorship that consists of			in any combination of service
(Vog/no If rag	recurrent of in-person, clinic and			opportunities from hospitals,
(1es/110. II yes,	lab science experiences under the			clinics, shadowing, to community
please describe.)		L		

	supervision of clinicians. The objective of this coursework is to provide students hands-on clinical experience, working with physicians and patients in urban under-served areas. Students learn both healthcare delivery and office management principles in a healthcare setting.		service. In addition, <u>laboratory</u> <u>research opportunities</u> are available. Students will have one designated supervisor or mentor for each experiential activity.
Master Thesis or dissertation required (Yes/No)	Yes – Master's Report	No	Yes
Additional Requirements (Please Describe.)			
# of Elective Units in the Major.	None	6 credit hours per semester for 12 credits total by end of fall semester	10
Minor options (as relevant)	No	No	No

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OFFICE OF THE ASSOCIATE VICE PRESIDENT FOR DIVERSITY AND INCLUSION

1501 N. Campbell P.O. Box 245140 Tucson, AZ 85724

Ofc: (520) 621-0235 Fax: (520) 626-2895

http://diversity.uahs.arizona.edu

September 13, 2017

Janet Sturman, PhD Associate Dean, Graduate College

Dear Dr. Sturman:

I am writing to you in support of the proposed Master of Science in Medical Studies (MMS) degree to be offered at the College of Medicine – Phoenix. As member of the leadership of the Pre-Medical Admissions Pathway (P-MAP) program, also called the Cellular and Molecular Medicine MS Medical Track, we recognize the unique opportunity available to us with two fully-accredited medical colleges within Arizona. Establishing the MMS program will allow us to take advantage of both colleges to expand our common goals.

The P-MAP program is designed to assist students who have encountered greater than average challenges in preparing for medical school admissions. The goal of our curriculum is to facilitate the development of knowledge and skills necessary to succeed in medical school, training and practice. As such, the goal of the P-MAP program is similar to that of the proposed MMS program, but these programs utilize distinctive curricula and structure, and are based in separate Colleges, and located in different parts of the State.

Like the existing Pathways Scholars graduate certificate program at the College of Medicine – Phoenix, the P-MAP program receives many more applications than it can accommodate each year. The number of qualified applicants from under-resourced backgrounds within the State of Arizona exceeds the number of slots available in both the P-MAP and Pathways Scholars programs combined. While both programs provide a pathway for students underrepresented in medicine to achieve their goal of medical school enrollment and career success, the location of the program and their subsequent medical training experience makes a big difference to our prospective students. Therefore, we foresee no conflict with the establishment of the new program, and fully support approval of the MMS program at the College of Medicine – Phoenix.

Please feel free to contact me with any questions.

Sincerely,

Francisco A. Moreno, M.D. Tenured Professor of Psychiatry Associate Vice President for Diversity and Inclusion, University of Arizona Health Sciences



Clinical Translational Sciences Office of the Senior Vice President for Health Sciences Phoenix Campus 550 East Van Buren Street Phoenix, AZ 85004-2230 Tel: (520) 626-8627 Tucson Campus Arizona Health Sciences Center Library 4th Floor 1350 N. Warren Ave. Tucson, AZ 85721-0202 Tel: (520) 626-8627

September 13, 2017

Janet Sturman, PhD Associate Dean, Graduate College

Dear Dr. Sturman:

As Co-director of the Clinical Translational Sciences (CTS) graduate program, I am writing in support of the proposed Masters of Sciences in Medical Studies (MMS) degree to be offered at the College of Medicine – Phoenix. As you know, the CTS program is based at the College of Medicine – Tucson, and offers MS and PhD degrees to students enrolled in Phoenix.

The CTS program is a research-based program which fosters translational research conducted by postgraduate and post-baccalaureate students. By contrast, the MMS program promotes enhancement of evidence-based medical knowledge together with a scholarly project intended to teach research design and conduct to students matriculating into medical school. While CTS and MMS students might work together in the same laboratories as part of their training, their program goals are complementary and without conflict.

The CTS program encourages inclusive excellence by promoting applications from students in Arizona and throughout the Southwest who are underrepresented in science. We fully support the complementary goal of the MMS program to provide a pathway for such underrepresented students to achieve their ambition of medical school enrollment at the College of Medicine – Phoenix. I am delighted to fully support the proposed MMS degree program at the College of Medicine – Phoenix. Please feel free to contact me with any questions.

Sincerely,

Jorge Gomez, MD Assistant Vice President, Translational Research in Special Populations

Appendix B

Curriculum for Pathway Scholars Program Master of Medical Studies Academic Year 2018-2019

	Date	6/18/2018	7/2/2018	7/9/2018	7/16/2018	7/23/2018	7/30/2018	8/6/2018	8/13/2018	8/20/2018	8/27/2018	9/3/2018	9/10/2018	9/24/2018	10/1/2018	10/8/2018	10/15/2018	10/22/2018	10/29/2018	11/5/2018	11/12/2018	11/19/2018	11/28/2018	12/3/2018	12/10/2018	12/17/2018	12/24/2018	1/1/2019	1/8/2019	1/15/2019	1/22/2019	1/28/2019	2/5/2019	2/12/2019	2/19/2019	2/26/2019	3/5/2019	3/12/2019	3/19/2019	3/26/2019	4/2/2019	4/9/2019	4/16/2019	4/23/2019	4/30/2019 5/7/2018	5/14/2019	5/21/2019	5/28/2019
studies		1	2 3	4	5	8 Pri	inci	8 ples	9 s of	10 Doc	tori	12 ng	13	14	15	16	17	18	19	20	21	22	23	24	25		ŀ	26	27	28	29 :	30	31	32	33	34	35	36	37		38	39	40	41 4	2 4	3 44	45	46
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MASTER OF MEDICAL STUDIES LEARNING OBJECTIVES

CURRENT COURSES:

MEDP 601 – Introduction to Medical and Professional Health Studies

Course Learning Objectives:

- Describe pathophysiology and genomics of breast cancer and explain how this disease impacts the lives of patients and their families and recognize how physicians influence this impact
- Identify and apply techniques used to give/receive effective feedback.
- Recognize and discuss how the Educational Program Objectives (EPOs) drive the teaching and assessment within the MMS curriculum.
- Recognize the importance of self-directed active learning and how to assess individual learning needs as relevant approaches to learning basic medical science and organ systems
- Identify resources available to learn the science and practice of medicine.
- Describe medicine as a profession that is guided by sound, basic science knowledge, evidence based medicine and professionalism.
- Recognize how the various programs and diversity within the COM-P support progressive academic and clinical experiences, including opportunities for service learning, rural and global health experiences and awareness of diverse cultures.
- Recognize medicine as a profession and its potential impact on the lives of patients, families and self.
- Describe the criteria by which students are assessed and how this process influences one's own educational and professional development.
- Describe how disease impacts the lives of patients and their families and how physicians influence this impact.

MEDP 618 – Principles of Molecular Basis of Life and Disease (P-MBLD)

- Recognize the molecular and genetic basis of life and disease.
- Recall the properties of the human genome and how its complexity may be analyzed.
- Citing specific examples, explain how genetic defects result in human diseases.
- Describe the normal structure and function of a typical animal cell.
- Describe how cells interact with each other to form tissues and organs during human development.
- Define the basic principles of pharmacology including pharmacokinetics, drug response, drug metabolism and pharmacogenomics.
- Apply the basic principles of histology to normal tissues and how changes may be indicative of pathology.

- Recognize the different classes of microbes that affect human health and disease.
- Identify components of the innate and adaptive immune response and describe host defenses to pathogen challenge in normal and immunocompromised individuals.
- Cite examples of the clinical importance of immunologic mechanisms and define immunological methods used in laboratory medicine and treatment modalities for immune-related diseases.
- Define neoplasia and describe the transformation of cells by explaining the action of oncogenes and tumor suppressor genes.
- Discuss the role of the behavioral sciences in health and disease.
- Describe the basic parameters and importance of public health, population medicine and prevention.
- Identify and apply the basic principles of epidemiology and biostatistics.
- Recognize the role of bioinformatics in the translation of biological advances into clinical advances.
- Identify and articulate fundamental ethical issues in medicine and genetics.

MEDP 620 – Principles of Cardiovascular Hematology

Course Learning Objectives:

- Apply core scientific knowledge of normal and abnormal hematology and cardiovascular system functions required by clinicians to provide complete health care.
- Evaluate and synthesize health related data utilizing problem-solving skills and active learning strategies.
- Critically interpret clinical tests and imaging and identify the appropriate use of testing in the hematology and cardiovascular domains.
- Recognize the psychosocial impact of acute and chronic disease on patients and families and the various approaches to supporting patients and their families.
- Develop and apply medical knowledge principles that will facilitate life-long learning and continued educational and professional growth.
- Demonstrate awareness of and assess information in educational resources regarding issues of diversity, public health, ethics, delivery of health care, and biotechnology as they apply to hematology and cardiovascular disease.
- Cooperate and collaborate with team members through verbal and non-verbal communication to document, present, and discuss information in an organized, accurate, timely, respectful, and understandable manner.
- Analyze, explain and discuss medical knowledge as it applies to effective patient care.

MEDP 619A – Leadership, Learning and Ethics I

- Identify legal, ethical, and social implications and controversies associated with healthcare delivery
- Demonstrate a commitment to excellence and lifelong learning, recognizing limitations and developing and implementing plans to successfully overcome these limitations

- Identify and articulate ethical issues in medicine and medical genetics
- Demonstrate a teachable attitude, including giving and receiving constructive feedback, being present and accountable, prepared and engaged during all learning workshops and activities
- Demonstrate enhanced study strategies to maintain academic success in the areas of: time management, note-taking, critical reading, independent study, goal setting, exam preparation and learning style development
- Identify resources available to learn the science and practice of medicine
- Identify academic/personal development and support resources available at COM-P
- Assess academic abilities and study strategies to ensure academic success
- Assess your problem solving, critical thinking, and knowledge of natural, behavioral, and social science concepts and principles perquisite to the study of medicine
- Develop longitudinal self-study skills that are applicable to standardized national testing, such as the USMLE Step 1

MEDP 619A – Leadership, Learning and Ethics II

Course Learning Objectives:

- Demonstrate leadership ability as an active participant in the promotion of the health and health care of the community
- Demonstrate a teachable attitude, including giving and receiving constructive feedback, being present and accountable, prepared and engaged during all learning workshops and activities
- Demonstrate a commitment to excellence and lifelong learning, recognizing limitations and developing and implementing plans to successfully overcome these limitations
- Identify legal, ethical, and social implications and controversies associated with healthcare delivery
- Identify and articulate ethical issues in medicine and medical genetics
- Demonstrate enhanced study strategies to maintain academic success in the areas of: time management, note-taking, critical reading, independent study, goal setting, exam preparation and learning style development
- Identify resources available to learn the science and practice of medicine
- Identify academic/personal development and support resources available at COM-P
- Assess academic abilities and study strategies to ensure academic success
- Assess your problem solving, critical thinking, and knowledge of natural, behavioral, and social science concepts and principles perquisite to the study of medicine
- Develop longitudinal self-study skills that are applicable to USMLE Step 1 preparation as a matriculated medical student

MEDP 691A – Preceptorship I

- Describe components of a medical history.
- Accurately obtain vital signs in a clinic-ambulatory setting.

- Demonstrate professional behavior and respectful communication in clinical, academic and community settings; including teachable attitude, giving and receiving constructive feedback, being present and accountable, prepared and engaged
- Observe communication and interpersonal dynamics of healthcare (interprofessional) teams
- Reflect on the physical, emotional, mental and spiritual aspects (including ethical dilemmas) of illness and healing faced by patients and their families/support systems
- Demonstrate value and empathy for perspectives, stories and experiences of patients, patients' families, and the provider/healthcare team
- Describe various government and private settings/organizations in existence for patient education, outreach, screening, diagnosis, treatment and support
- Describe positive examples of communication (person-to-person, EHR and other systemsbased methods) between primary care and subspecialty care, that promote optimal outcomes for patients
- Self-reflect on the student's own physical, emotional, mental and spiritual reactions to patient illness; compare and contrast with reactions and self-care techniques demonstrated by clinical role models
- Reflect on clinical experiences in the context of the student's own career preferences
- Identify ethical dilemmas in the clinical environment
- Discuss personal implicit bias and how it may affect physician medical practice

MEDP 691B – Preceptorship II

- Demonstrate professional behavior and respectful communication in clinical, academic and community settings; including teachable attitude, giving and receiving constructive feedback, being present and accountable, prepared and engaged
- Describe components of a medical history.
- Accurately obtain vital signs in a clinic-ambulatory setting.
- Observe communication and interpersonal dynamics of healthcare (interprofessional) teams
- Reflect on the physical, emotional, mental and spiritual aspects (including ethical dilemmas) of illness and healing faced by patients and their families/support systems
- Demonstrate value and empathy for perspectives, stories and experiences of patients, patients' families, and the provider/healthcare team
- Describe various government and private settings/organizations in existence for patient education, outreach, screening, diagnosis, treatment and support
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- Reflect on clinical experiences in the context of the student's own career preferences

- Identify ethical dilemmas in the clinical environment
- Discuss personal implicit bias and how it may affect physician medical practice

NEW COURSES NEEDED

MEDP 608 – Principles of Physical Examination:

Course Learning Objectives:

- Demonstrate the ability to obtain an accurate (patient centered and transition to physician centered) medical history in an organized and systematic fashion that covers all aspects of the history (e.g., CC, HPI, PMH, SH, FH, ROS) in a timely manner.
- Determine the influences of the patient's age, sex, socio-economic conditions, culture, race, religious beliefs and ethnicity on the perception of illness, its treatment and appropriately adjust care to address these influences.
- Define the following skills applications and how each is assessed: Patient Care, Medical Knowledge, Critical Appraisal and Quality improvement, Interpersonal and Communication Skills, Oral and Written Communication Skills and Professionalism Department/Attitudes and Skill Application.
- Demonstrate an understanding of the meaning of, rationale for, and application of patientcentered (relationship-centered) medicine in a clinical encounter.
- Memorize the vocabulary and the review of systems (ROS) in layman terms and medical vernacular and appropriately use in clinical situations in the course
- Be open to identify strengths, deficiencies, and limits in one's knowledge and skills
- Actively practice reflection skills in the week following standardized patient encounters
- Review videos and feedback on Learning Space (LS), integrating faculty written and oral feedback and one's own self-assessment in a narrative documented in LS
- Set learning and improvement goals
- Identify and perform learning activities that address one's gaps in knowledge, skills, and/or attitudes
- Implement faculty-facilitated and personal SEV goals during the subsequent sessions.
- Utilize the Center outside of class time for practice to perfect skills taught in class.
- Demonstrate cooperation, collaboration, communication with peers, standardized patients (SP), staff, and faculty.
- Demonstrate effective listening skills and the ability to elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.
- Effectively work with peers in teams when appropriate.
- Create and sustain a therapeutic and ethically sound relationship with standardized patients.

MEDP 909 - Master's Report (Fall, Spring)

Course Learning Objectives:

• Discuss personal implicit bias and how it may affect physician medical practice

- Execute a thorough investigation of a medical question using reliable sources and critical thinking skills
- Demonstrate effective verbal and written communication through the construction of a research question, background significance and rationale and methodological approach
- Demonstrate teamwork and effective communication with the Scholarly Project team and mentor during the construction and implementation of an effective research plan designed to acquire new information
- Demonstrate the ability to use PubMed and other scholarly sources to develop the background, rationale, and research question for your Scholarly Project
- Develop draft of Prospectus, which can be used to fulfill the four-year COM-P Scholarly Project requirement.
- Deliver an oral presentation of master's report

Master's Report Trajectory of Milestones

<u>Fall:</u>

- 1. Present research interests
- 2. Mentor pairing
- 3. Literature search assignments
- 4. Research question and hypothesis

<u>Spring:</u>

- 5. Complete CITI Program online training
- 6. Mentor and director approved prospectus
- 7. Deliver satisfactory presentation
- 8. Write their intended prospectus that would be submitted to IRB

MEDP615A - Principles of Organ Systems I

- Describe the general physiological processes used by the body to maintain homeostasis
- Discuss the etiology and effects of disease on the various organ systems
- Describe the alterations in cells, tissues, and organs that occur with disease and the effects they have on total body function.
- Relate the manifestations of diseases to their underlying cellular mechanisms.
- Discuss the structure and function of human skin, physical causes of skin inflammation and inflammatory disorders
- Explain the nervous system's functions, diseases that affect the nervous system, and pain types
- Identify the disorders and diseases of bone tissues and joints, including myopathy, osteoarthritis and rheumatoid arthritis, and of the human reproductive system

MEDP 615B - Principles in Organ Systems II

- Compare and contrast the various types and causes of cardiovascular and blood disorders, conditions, and diseases
- Explain how carbon dioxide is transported in the blood, diseases and conditions of the lungs, and how the lungs affect the heart
- Summarize the structure of the kidney, diseases and conditions that affect the kidney, and the roles that sodium, chloride and potassium play in human bodies
- Examine the diseases and conditions that affect the gastrointestinal system, stomach, small intestine, gall bladder and pancreas
- Examine the diseases and conditions that affect the human reproductive system

MMS Assessment:

Courses assessed by pass/fail utilize this behavioral competency assessment. Competencies are assessed as applicable in each of the following courses: Preceptorship I & II, Leadership, Learning & Ethics I & II, Principles of Physical Examination, and Scholarly Project Master's Report. Students receive a "mid" evaluation (formative) and an "end" evaluation (summative) in each of these. To pass the student must obtain a level 2 or 3 in the summative evaluation.

<u>Directions</u>

Select the performance level of assessment and specify the corresponding competency criteria. For all level ratings, supporting Comments are **required**.

Competency & EPOs	Level 1	Level 2	Level 3
	(Does not meet expectations)	(Meets expectations)	(Exceeds expectations)
Interpersonal and Communication	Only responds to presentation when	Engages in conversation with the	Also further explores additional
Skills	prompted or is disengaged	group beyond responding to when	issues raised by the question
Cooperate, collaborate, and		prompted	
communicate with team;			
Document and present patient data,	Presents incomplete or inaccurate	Presents complete and accurate	Documents and presents complete,
use effective nonverbal	information;	information;	accurate, succinct information;
communication and questioning;			
	Omits relevant questions	Poses relevant questions	Poses relevant questions
Uses focused listening skills;	Interrupts others or is inconsiderate	Listens to others' perspectives and	Acknowledges input as relevant and
	of others' perspectives	allows others to finish their input;	meaningful by responding in a
			positive manner
Communicate using effective	Constructs presentation by solely	Constructs presentation with some	Constructs unique presentation
nonverbal, explanatory, questioning	copy/pasting or quoting heavily from	copy/pasting or quoting from source	without any copy/pasting or quoting
and writing skills;	source		from any source
		Poses relevant questions	
	Does not pose relevant questions		Poses relevant questions
Professionalism	Copies/pastes directly from sources	Uses own words to explain concepts	Also encourages the group to share
Exhibits integrity and accountability			information among its members
in all interactions	Avoids or shirks responsibility of	Takes responsibility of committing	
	committing to or completing tasks	to/completing tasks	
Maintains a teachable attitude,	Responds in a defensive manner to	When given feedback, responds	Initiates giving and receiving

including giving and receiving	feedback,	openly but does not solicit it,	feedback;
constructive feedback;	Is unwilling to loorn or provide		
	feedback	Is willing to learn and provide	Is willing to learn, help others learn
Respect contributions of others	Is rude or inattentive, and displays	Is attentive, and displays respectful	Also acknowledges the contributions
show compassion, sensitivity	harassing or interrupting behaviors	behaviors toward others:	of others and fosters teamwork
respect toward others, including	toward others;		
diversity;			
	Is insensitive toward others	Is considerate of others	
Exhibits integrity and accountability	Is not forthcoming about the degree	Honestly represents their	Also encourages the group to share
in all interactions	to which they contributed to tasks;	contributions to tasks;	information among its member
	Avoids or shirks responsibility of	Takes responsibility of committing	
	committing to or completing tasks	to/completing tasks	
Demonstrates knowledge and	Considers only one side of an issue	Considers multiple ethical issues and	Also highlights ethical principles
commitment to ethical principles		identifies multiple/diverse	involved in all aspects of the case
, ,		perspectives	·
			A 1 1 · · · · · · · · · · ·
Medical Knowledge	Has difficulty linking MK facts to	Applies MK facts to realistic	Also explains integrated concepts in
<i>Medical Knowledge</i> Analyze, explain and discuss medical	Has difficulty linking MK facts to realistic concepts;	concepts;	Also explains integrated concepts in a succinct manner
<i>Medical Knowledge</i> Analyze, explain and discuss medical knowledge as it applies to effective	Has difficulty linking MK facts to realistic concepts;	concepts;	a succinct manner
<i>Medical Knowledge</i> <i>Analyze, explain and discuss medical</i> <i>knowledge as it applies to effective</i> <i>patient care</i>	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant	Applies MK facts to realistic concepts;	a succinct manner
<i>Medical Knowledge</i> <i>Analyze, explain and discuss medical</i> <i>knowledge as it applies to effective</i> <i>patient care</i>	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner	Also explains integrated concepts in a succinct manner
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various	Also explains integrated concepts in a succinct manner Also explains how these pros/cons
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications,	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice;	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature,	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources;
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature, credits sources	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable sources without critical appraisal;	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and limitations of reliable source;	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources;
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature, credits sources	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable sources without critical appraisal;	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and limitations of reliable source;	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources;
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature, credits sources	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable sources without critical appraisal; Incorrectly credits sources	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and limitations of reliable source; Correctly credits sources	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources;
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature, credits sources Recognizes own limitations, gaps in knowledge, admits error and	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable sources without critical appraisal; Incorrectly credits sources Refuses to admit error or ostracizes others for their error	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and limitations of reliable source; Correctly credits sources Admits error and seeks help to correct error	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources; Also identifies what could be done differently to proactively avoid error
Medical Knowledge Analyze, explain and discuss medical knowledge as it applies to effective patient care Critical Appraisal Identifies social implications, controversies associated with medical practice; Critically assesses articles/literature, credits sources Recognizes own limitations, gaps in	Has difficulty linking MK facts to realistic concepts; Is unable to summarize relevant material so that it correctly conveys understanding Omits discussion of pros/cons of various social issues related to medical practice Accepts what is read from reliable sources without critical appraisal; Incorrectly credits sources Refuses to admit error or ostracizes	Applies MK facts to realistic concepts; Explains relevant material in a correct, explanatory manner Discusses the pros/cons of various social issues related to medical practice Identifies potential biases and limitations of reliable source; Correctly credits sources Admits error and seeks help to	Also explains integrated concepts in a succinct manner Also explains how these pros/cons may affect the patient Also compares with other sources; Also identifies what could be done

Identify specific study strategies for	Is unaware of specific study	Is able to identify specific study	Is able to identify and apply specific										
learning medical knowledge;	strategies for learning medical	strategies for learning medical	study strategies for learning medical										
	knowledge	knowledge	knowledge										
Identify available academic and	Is unaware of available	Is able to identify available	Is able to identify and incorporate										
personal resources in formulating	academic/personal resources in	academic/personal resources in	available academic/personal										
self-management plans;	formulating self-management plans	formulating self-management plans	resources in formulating self-										
			management plans										
Patient Care	Obtains patient history and vital	Obtains patient history and vital	Discusses vital signs in context of										
Obtains patient history and vital	signs, but omits relevant/important	signs, including all	patient history										
signs	information	relevant/important information											
Specific comments (required): What a	lid the student do well, not so well, suggestio	ons for improvement?	Specific comments (required): What did the student do well, not so well, suggestions for improvement?										

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BUDGET PROJECTION FORM										
Name of Proposed Program or Unit: Master of Medical Studies										
		Projected								
	1st Year	2nd Year	3rd Year							
	2018 - 2019	2019 - 2020	2020 - 2021							
METRICS										
Net increase in annual college enrollment UG										
Net increase in college SCH UG										
Net increase in annual college enrollment Grad	10	10	10							
Net increase in college SCH Grad	9	9	9							
Number of enrollments being charged a Program Fee	-	-	-							
New Sponsored Activity (MTDC)	-	-	-							
Number of Faculty FTE	0.65	0.65	0.65							
FUNDING SOURCES										
Continuing Sources										
UG RCM Revenue (net of cost allocation)										
Grad RCM Revenue (net of cost allocation)	115,086	138,103	165,724							
Program Fee RCM Revenue (net of cost allocation)		,	,							
F and A Revenues (net of cost allocations)										
UA Online Revenues										
Distance Learning Revenues										
Reallocation from existing College funds (attach description)	205,214	203,212	197,657							
Other Items (attach description)										
Total Continuing	320,300	341,315	363,381							
One-time Sources										
College fund balances		-	-							
	2,000	-	-							
Other Items (attach description)	2,000	2,100	2,205							
	100,000	100,000	100,000							
	102,000	102,100	102,205							
TOTAL SOURCES	422,300	443,415	465,586							
EXPENDITURE ITEMS										
Continuing Expenditures										
Faculty	142,000	149,100	156,555							
Other Personnel	168,000	176,400	185,220							
Employee Related Expense	99,200	104,160	109,368							
Graduate Assistantships		-	-							
Other Graduate Aid		-	-							
Operations (materials, supplies, phones, etc.)	13,100	13,755	14,443							
Additional Space Cost										
Other Items (attach description)										
Total Continuing	422,300	443,415	465,586							
One-time Expenditures										
Construction or Renovation										
Start-up Equipment										
Replace Equipment										
Library Resources										
Other Items (attach description)										
Total One-time	-	-	-							
TOTAL EXPENDITURES	422,300	443,415	465,586							
Net Projected Fiscal Effect										

DREXEL- PATHWAY TO MEDICAL SCHOOL CURRICULUM COURSE LISTING

Drexel Pathway to Medical School program students who meet the GPA and MCAT score requirements matriculate into the medical school. The following outlines the program course list.

DPMS 500S	Medical Science Preparation	1.0							
DPMS 501S	Critical Thinking and Scientific Communication	2.0							
DPMS 502S	Accelerated Intro to Medical Biostatistics	3.0							
MSPS 520S	Medical Terminology	3.0							
FALL SEMESTER									
IMSP 513S	Biochemical Basis of Disease	8.0							
IMSP 522S	Function of the Human Body I	3.5							
IMSP 542S	Cell Biology and Histology I	5.0							
Electives: 6 credit hrs per semester for 12 credits total by end of fall semester									
MSPP 404S	Concepts in Science and Verbal Reasoning I	6							
IMSP 573S	Basic Immunology I	1.5							
DPMS 503S	Neurobiology of Mental Illness	4.5							
SPRING SEMESTER									
IMSP 506S	Medical Professionalism and Leadership	2.0							
MSPP 513S	Special Topics in Anatomy	4.0							
IMSP 523S	Function of the Human Body II	3.5							
Electives: 6 credit hrs per se	mester for 12 credits total by end of fall semester								
MSPP 405S	Concepts in Science and Verbal Reasoning II	6							
IMSP 574S	Basic Immunology II	1.5							
DPMS 504S	Functional Neuroanatomy	4.5							

SUMMER ENRICHMENT PROGRAM

TOTAL CREDITS

47.0

UNIVERSITY OF PITTSBURGH

CURRICULUM:

The Biomedical Master's Program (BMP) curriculum includes three major components: core courses, electives, and experiential activities. A common "core" has been designed to enrich the background of students who have a minimal level of basic science training. These courses are complemented by electives and experiential activities that are chosen on the basis of each student's interests and needs. Study plans are organized along Areas of Concentration designed for students interested in biomedical research (with MS as terminal degree or toward PhD-granting graduate programs) or in admission to Medical and Dental Schools.



CORE COURSES:

Biochemistry and Physiology (3 Credits)

This course will introduce the basic concepts of biochemistry and organ/cell physiology. The course will cover the composition and structure of biomolecules and the physicochemical properties of macromolecules. The principles, methods, and analysis of enzyme function and the major metabolic pathways will be explored. The course will include traditional lectures, small-group problem-based solving, and self-directed learning.

Cell Signaling and Pharmacology (3 Credits)

This course examines the principles of drug action. The course covers the basic principles of pharmacokinetics and pharmacodynamics. Particular emphasis is placed on the concept that rational use of drugs arises from the understanding of the interaction, signaling mechanisms, and functional outcomes at the molecular and cellular level.

Methods and Logic in Biomedicine (MLB) (3 Credits)

The course will introduce the student to the life-long learning of analytical and evaluative skills that are now taught at leading medical and other health science schools to allow the student to stay current with best practice through individual and collaborative learning.

Comprehensive Analysis of Disease (CAD) (3 Credits)

This course is designed to give the students the opportunity to integrate all the knowledge accumulated during the program in a comprehensive study of disease states. Small groups of students will work collaboratively to develop an in-depth analysis of a specific disease, from the diagnosis to the pathogenesis, the molecular and cellular basis and treatment options currently available. Each group of students will work in a web-based platform under faculty supervision to develop an interactive, knowledge-based teaching/research study.

Career Planning and Professionalism (1 Credits)

The course provides foundational training in career planning and professional development relevant for careers in the health sciences. This includes increasing your capacity for self-directed career development, fostering life-long career management habits, and maximizing your scholarly training. Students will engage in experiential learning, small-group discussions, and peer mentoring.

ELECTIVE COURSES

Cell Biology Pathways in Treatment of Disease (2 Credits)

This course explores how cell biology and genetics have revolutionized approaches to understanding the basis of disease and approaches to cures. A set of major cell pathways will be used to illustrate how new drug targets are established and can lead to dramatic advances in medical treatments. The course blends traditional lectures with self-directed student activities to prepare the students for lectures.

Human Anatomy (3 Credits)

This course will provide an introduction to the human body by developing an understanding of the human body essential to the future doctor and allied health professionals.

Histology and Cell Function in Health and Disease (3 Credits)

An understanding of the human tissues is essential to the future doctor and allied health professionals. The course will provide an introduction by exploring common and distinct structural and functional themes of the major tissues, the specific cell types that build them, and the unique organs formed in each of the systems of the human body.

Biomedical Literature Research (2 credits)

The Biomedical Literature Research class is a two-credit course taken during the spring semester, after completion of all other requirements. The students are required to prepare a paper, which is a requirement for the Masters of Science degree. It may be written on practically any topic of the student's choosing. Each student chooses a faculty advisor to read his or her paper, otherwise it is an independent project (no classes involved).

Response to CAAC Inquiries RE: Master of Medical Studies

CAAC members noted that the certificate has a proven track record of increasing the diversity of medical students in the UA COM PHX and promoting the training of physicians interested in serving rural areas and underserved populations. Their questions focused on the following three issues:

1. How is this program different from the PMAP (Pre-Medical Admissions Pathway) program offered by COM Tucson? Could you explain why it is necessary to have two versions of a similar degree?

While both programs have similar goals, they use very distinct and different curricula and program structures. Additionally, P-MAP and the MMS program are based at separate Colleges and in different parts of the State. The location of the program and the subsequent medical training provided are critically important to prospective students in selecting which program to attend. MMS students typically come from Northern or Central Arizona, and their family structure is closer to the Phoenix campus, providing added support during their graduate and professional training.

We have obtained a letter of support from Dr. Francisco Moreno, a member of leadership for the Pre-Medical Admissions Pathway (P-MAP) program. This letter is included as Appendix A. Dr. Jorge Gomez, Co-director of the Clinical Translational Sciences (CTS) graduate program has also provided a letter of support for the MMS program, included as Appendix B.

2. CAAC members asked for further clarification of why you want to replace the Professional Studies in Health Science, aka "Pathways" Graduate Certificate (22 units) with the Masters of Medical Studies. They would like to see some evidence about why the extra courses are necessary compared to the certificate. How are students better served by the proposed program?

We determined based on surveys and recommendations of former Pathway students who are now in medical school, that additional coursework on the pathophysiology of organ systems was essential to their success in the required certification exam (USMLE Step I), as well as their professional school success. A pilot version of the proposed additional curriculum has been developed and is now offered as supplemental curriculum; however, the number of course hours associated with the supplemental curriculum exceeds the credit limit for graduate certificates. Nevertheless, every Pathway student has taken advantage of the supplemental courses. The medical school course grades and USMLE Step scores are confidential under LCME standards. When we piloted the new curriculum containing additional courses, students expressed their satisfaction in being better prepared for medical school courses. The additional credit bearing course work is anticipated to have an overall an increase of USMLE Step 1 scores in MMS students compared to Pathway students who completed the less comprehensive certificate curriculum.

The proposed Master of Science program provides an additional significant advantage to Pathway students who are not currently eligible for financial aid under the Graduate Certificate program. Although their tuition is supported by donors, COM-Phoenix is unable to provide a stipend for living expenses, and many students must work during their studies. Their eligibility for financial aid during this one-year program, which will itself further enhance their career potential and earning ability, is a tremendous asset to these students, which is not otherwise available to Phoenix-based students in the current Graduate Certificate program.

3. CAAC members were concerned about the financial ramifications for students, and the cost of the additional coursework. Should you run out of funding for the program, how much of an increase would there be in fees & tuition paid by students?

The MMS is a priority to the College of Medicine – Phoenix as a pipeline program to help meet diversity initiatives central to the mission of the college, as described in our LCME accreditation documentation. Two areas within the College of Medicine – Phoenix are central to the delivery, support and sustainability of pipeline programming for which the MMS would be considered. This would be the Office of Admissions and Recruitment and Office of Diversity and Inclusion. When speaking with the Dean of Admissions for COM-P, he reiterated that core to their mission – as well as the mission of the medical school – is to have the incoming classes be as close of a reflection of the general Arizona population as possible. This central initiative includes the Pathway Scholars Program (MMS), which receives financial support within the school as well as community support, due to the value received in reaching this population and how this group of future MD students will someday pay forward the support they had at critical decision points within their lives.

Moreover, in our current Diversity and Inclusion Five-Year Strategic Plan draft, the Pathway Scholars Program/MMS is identified as a critical pipeline program to help us advance diversity and inclusion goals in our undergraduate medical class. As a strategic initiative, the adequate funds will be allocated to ensure the continuance of the MMS. In its current form, the College of Medicine – Phoenix subsidizes program costs, and will continue to do so, to ensure sustainability of this program. It should be pointed out that the tuition and fee cost of the proposed MMS program (31 units in 2 semesters) is the same as that of the current Pathway program (22 units in 2 semesters). Therefore, the only financial consequence to students entering the MMS program is that they will be eligible for financial aid under the proposed program. As we approach the final year of our current donor commitments, we are working hard to renew and increase donor funding for the program. The ability to promote the program to donors as a fully-accredited Master's degree program in a recently fully-accredited medical college is expected to assist in this goal.