COLUMBIA | VAGELOS COLLEGE OF PHYSICIANS AND SURGEONS

Student Research at VP&S
Scholarly Projects Program (SPP)

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WELCOME FROM THE DEANS

Scholarly Projects Program
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November 1, 2022

Dear Students and Faculty:

Established in 2012, we are delighted to welcome you to the Scholarly Projects Program (SPP) at the College of Physicians and Surgeons! The SPP offers you the opportunity to delve in-depth into an area of medicine that interests you and to share your findings with your colleagues in our academic community.

In the SPP, you will craft an individualized medical school experience for yourself, with the ability to take advantage of the broad range of faculty whose research endeavors, clinical practices and educational programs enrich our campus. The VP&S faculty has a long tradition of mentoring medical students and is looking forward to working with you. In addition, our close affiliation with the Mailman School of Public Health, the College of Dental Medicine, and the School of Nursing on the CUMC Campus, as well as Columbia University at large on the Morningside Campus, offers unparalleled resources to facilitate and guide your progress.

It is our hope that you will find that your experience in the SPP forms an important part of what will flourish into an exciting and rewarding medical career.

Sincerely,

Monica L. Lypson, MD, MHPE
Vice Dean for Education
Columbia University VP&S
Rolf H. Scholdager Professor of Medicine
Columbia University Irving Medical Center

Anil K. Lalwani, MD
Associate Dean for Student Research
Professor and Vice Chair for Research
Co-Director, Columbia Cochlear Implant Center
Department of Otolaryngology—Head & Neck Surgery
Columbia University VP&S

PROGRAM OVERVIEW

Aim and Rationale

The Scholarly Projects Program (SPP) links medical students with faculty mentors to explore an area of medical practice or research with the aim of creating new knowledge. We encourage students to select a project that allows for immersion with the hope that this experience will consolidate the learning developed through Fundamentals and the Major Clinical Year into an individual professional passion.

All students (except in the PhD-to-MD track) are required to complete a scholarly project, though those who complete a year of research or a second academic degree during medical school may elect to waive the Scholarly Project requirement.

Learning Objectives

The SPP aims to develop students' abilities in the following School-Wide Learning Objectives: (i) generate hypotheses, exhibit curiosity and develop a pattern of life-long learning and (ii) participate in the process through which new knowledge is generated, and assess the importance of novel ideas. Specifically, in completing the SPP, students will have the opportunity to ask innovative questions, deepen their experience of medicine and contribute to the academic environment.

Preparation

The major steps of preparation for the Scholarly Project include mentor selection, track selection and development of the project proposal. In selecting a track, we encourage students to reflect on their individual experiences, interests and passions and seek consultation from potential mentors and SPP Faculty as early in their medical training as they wish.
Other preparatory work required prior to beginning the Scholarly Project depends on the topic.

For example, students proposing original human subjects research must familiarize themselves with the policies and procedures of the Institutional Review Board.
All students in the SPP may meet with the SPP Director and SPP Track Directors in advance to discuss their scholarly project goals and the tracks in which they are interested.

Subject Matter

The topic of the Scholarly Project is up to the student and should find common ground between the student's interests, abilities and career desires and those of the mentor.

In structuring a Scholarly Project, students select from five available tracks of study - Basic

and Translational Science, Clinical Research, Global and Population Health, Medical Education, and Narrative and Social Medicine - each directed by senior faculty member(s). The Track Directors assist students in identifying mentors, structuring project proposals and anticipating regulatory reviews including those by the Institutional Review Board. Track Directors are also responsible for approving students' projects, reviewing their progress on a regular basis and reviewing and grading students' Capstones and posters.

Curriculum

Students in the SPP dedicate four or more months of full-time effort on their project during Differentiation & Integration (D&I). SPP work, including the students' investigation and involvement in any track-specific didactics, may be started as early as the beginning of D&I and **must be completed by the end of March prior to graduation**. The requirement may be fulfilled contiguously or in divided periods.

At the conclusion of the Scholarly Project, each student is required to prepare and submit a written summary of their work, the ***Capstone***, and a ***poster***. Submitted work is reviewed by the mentor and Track Director according to common standards.

Funding

Each student completing a scholarly project is eligible for up to $500 to defray expenses related to travel, presentation or other costs associated with the project. Students may apply for additional funding through the Sara and Arnold P. Friedman Awards program. Columbia Faculty mentors receive a stipend for their contribution upon completing the final evaluation. A foreign mentor must complete an 8BEN form using an email address so the mentor can verify their information.

Scholarly Projects "Plus"

Students who wish to engage in projects longer than four months must develop an Individualized Learning Plan (ILP) and request a meeting with the SPP Director by opening a ticket in UserVoice (psofficeofed.uservoice.com).

The ILP will be reviewed by the SPP Director and the Senior Associate Dean of Student Affairs before additional months are approved.

KEY FACULTY & ADMINISTRATORS

SPP DIRECTOR

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up2104@columbia.cumc.edu

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SPP TRACK DIRECTORS

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NARRATIVE AND SOCIAL MEDICINE

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Professor and Chair of Medical Humanities and Ethics
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CHECKLIST

Late in the Major Clinical Year

This is the time to consider what specialties you may choose to investigate at greater depth in the elective portion of the curriculum. When you are ready, review the VP&S Match Profile of the specialties of interest to you to gauge how important research is in the overall application. Some specialties, particularly surgical subspecialties, expect you to have spent some of your time in medical school pursuing clinical research in that discipline. Most others, though, have a remarkable degree of flexibility and view your choice of scholarly project as an expression of your academic and/or personal priorities.

- The SPP Director is happy to meet with you to think through your ideas – please open a ticket at psofficeofed.uservoice.com to request a meeting.

During Boards Studying or Early in D&I

This is the time to home in on your project, including starting to think about the track in which you would like to work and potential research projects.

- Take some time to review projects that VP&S students have completed in the past at https://courseworks2.columbia.edu/courses/211296/files.

Prior to First Month of Scholarly Project (Timing Varies)

- You must have identified a mentor with whom you will work with for the duration of the SPP
- You must add yourself to the waitlist on OASIS at least 28 days before the first day of the month in which you plan to begin your project (i.e., the D&I add/drop policy).
- If needed, obtain IRB approval, IUCAC approval, and finish required training
- Under no circumstances may you begin to collect data from human subjects until you have met both of the following requirements:

  (i) your project has been approved by the Institutional Review Board and

  (ii) your Track Director has reviewed and approved your project proposal.

- Please note: The Senior Assoc. Dean of Student Affairs will collect SPP information in August to be applied to your Medical School Performance Evaluation (MSPE)

SCHOLARLY PROJECT TIMELINE

Considerations for Students and Mentors during SP Months 1 – 4

Month 1

Begin Month 1 of Scholarly Project by September at the latest.

- Confirmed mentor needed in order to register for Month 1.
- During Month 1, develop and finalize a project proposal with guidance from your mentor.
- Submit project proposal via Courseworks (proposal template can be found here) by the midpoint of first month.
    - Proposal can be submitted only after mentor has reviewed and approved the proposal.
    - The track director(s) will then review and must approve your submitted proposal in Courseworks.
    - Approved (by both mentor and track director) scholarly project proposal must be in place in order to register for additional scholarly project months.

Month 2

Ongoing scholarly project engagement (incl. track-specific didactics, ongoing meetings with mentors, and check-ins with track directors as needed).

- Again, add yourself to the waitlist on OASIS at least 28 days before the first day of each month in which you plan to work on your project.
- Upon completion of your second scholarly project month, please complete an evaluation via OASIS to ensure that you are on track for completing the scholarly project.

Month 3

Ongoing scholarly project engagement (incl. track-specific didactics, ongoing meetings with mentors, and check-ins with track directors as needed).

- Again, add yourself to the waitlist on OASIS at least 28 days before the first day of each month in which you plan to work on your project.

Month 4/ Final

Final scholarly project month can be no later than March of the M4 year.

- Preliminary submission (via email) of Capstone for initial review/feedback by mentors and (as appropriate) track directors.
- Final submission via Courseworks of Capstone and Poster (with final approval by mentor) – typically the 15th of the month following the end of the project, or March 31st for projects ending in March.
    - Capstone and Poster must be submitted to Courseworks by the last day of final

scholarly project month. Please note that SP Capstone and Poster do not need to be publication ready for submission on Courseworks.

- A 15-day grace period is permitted for final completion/submission of Capstone and Poster. This is typically most helpful in November/December given student commitments during this timeframe.

Scholarly Project Plus (Timing Varies)

Students wishing to extend Scholarly Projects beyond four months must meet with the SPP Director to develop an individualized learning plan (ILP). You may request a meeting by opening a ticket in UserVoice psofficeofed.uservoice.com.

SCHOLARLY PROJECTS PROGRAM

BASIC AND TRANSLATIONAL SCIENCE

Over four hundred federally (NIH and NSF) funded basic sciences laboratories at Columbia University are probing fundamental questions in biology, chemistry, and physics. Advances in basic science have inspired advances in medicine for centuries. Sometimes the medical benefit of discoveries is unanticipated. Few thought, for instance, that the 1857 discovery of the microbial basis of fermentation would lead to the germ theory of disease. The potential application of mRNA as vaccines was under-appreciated for decades until their rapid deployment for the COVID-19 pandemic. Sometimes benefits are more immediately evident. Particle physicists in the 1950's quickly appreciated the potential of particle beams and pioneered new cancer therapies. Physicians have been an integral part of the distinguished history of basic science discovery. Dr. Michael Brown and Dr. Joseph Goldstein, Nobel laureates, physicians and discoverers of the LDL receptor, recently observed: "Ambitious young physicians juxtaposed to cutting-edge basic scientists can themselves make fundamental discoveries."

Prior contact with a laboratory will help you make the best use of your Scholarly Project time to develop interesting hypotheses, experimental approaches, and results. We encourage you to attend research seminars on campus - early and often. We also offer formal seminar opportunities (e.g., Seminars in Research at P&S Series and the Medical Scholars Seminar Series) to expose you to exciting research and to hone your scholarly questions and communication skills.

TRACK DIRECTOR

Utpal Pajvani, MD, PhD, Associate Professor of Medicine in the Division of Endocrinology, was born and raised in New Jersey, graduated from M.I.T. in 1996, then earned M.S. (2001), M.D. (2005) and Ph.D. (2005) degrees from the Albert Einstein College of Medicine. Dr. Pajvani completed his internship and residency training and is board certified in Internal Medicine (2007) and fellowship in Endocrinology, Diabetes & Metabolism (2011), both at the Columbia University Medical Center.

Dr. Pajvani has been on the faculty of Columbia University since 2011. He is a teaching attending on the inpatient and outpatient Endocrinology and General Medicine services of the New York Presbyterian Hospital and sees patients at the Naomi Berrie Diabetes Center at Columbia University. Dr. Pajvani's research focuses on the role of developmental pathways in the regulation of Type 2 Diabetes (T2D) and Metabolic-dysfunction associated steatotic liver disease (MASLD), and the use of existing therapeutic agents in other scientific areas in novel applications to ameliorate obesity-induced complications including cancer. He has received intramural and NIH support for his research and has mentored medical and graduate students as well as postdoctoral and clinical fellows. He will help you identify mentors and develop your research interests.

RECENT PROJECTS (2023-2024)

Treg engineering to promote tolerance for xenotransplantation
T Cell Clonal Dynamics in Response to Immune Checkpoint Blockade
Characterization of Human Anterior Cruciate Ligament Sheath and Core Tissues in Healthy and Pathologic States
Analysis of Alveolar Epithelial Regeneration in a Hyperoxic Acute Lung Injury Model using Lineage Tracing
Single-cell Analysis of Adeno-Squamous Transformation in Lung Adenocarcinoma
Cardiac Rad Protein: A Novel Target for Augmenting Contractility and Arrhythmia Prevention
Inborn Errors of Immunity in Skin Disease

CLINICAL RESEARCH

Clinical research aims to translate basic science findings in order to improve the diagnosis, prognosis and treatment of disease in humans. Columbia has a long and distinguished history of ground-breaking clinical research including the development of the Apgar Score to assess newborns, development of the antibiotic bacitracin, identification of cystic fibrosis, and isolation of the first known odor receptors in the nose, among many others. Our medical center remains an international leader in clinical research today and is brimming with clinical research opportunities in every specialty of medicine. As clinicians, we routinely impact the health of individual patients one-on-one, but as clinical researchers our discoveries have the potential to affect patients' health and well-being more widely through discoveries that affect screening and treatment guidelines. As potential collaborators, you are a research director's dream - creative, capable, dedicated, brilliant, productive, and optimistic. The key to a scholarly project in clinical research is matching your interests and talents with those of a stimulating mentor. A fully formulated, original research plan is optional but not required. Most student research concepts will ultimately be modified to match the resources and funding of the mentor's research group. Your scholarly work in the clinical track will enhance your ability to evaluate medical literature, develop a testable hypothesis, analyze data and pursue your findings to a publishable result.

TRACK DIRECTORS

Marcella Walker, MD is a Professor of Medicine at Columbia University Irving Medical Center in the Division of Endocrinology, Diabetes and Metabolism. Dr. Walker received her undergraduate training at Wesleyan University and her medical degree at the Johns Hopkins University School of Medicine. She completed her residency in Internal
Medicine at the Johns Hopkins Hospital in 2002 and went on to complete a 3-year fellowship training program in Endocrinology, Diabetes and Metabolism at Columbia. Dr. Walker joined the VP&S faculty in 2005. Dr. Walker also completed a Masters' Degree in Biostatistics and Patient- Oriented Research at the Mailman School of Public Health, Columbia University in 2009. Her clinical activities involve caring for patients in the Metabolic Bone Diseases Unit with a variety of disorders including primary hyperparathyroidism, osteoporosis, Paget's disease, fibrous dysplasia, osteomalacia, hypophosphatasia and osteopetrosis. Dr. Walker participates in a number of teaching settings, including as a lecturer and small group preceptor during the Endocrinology section of "The Body: In Health and Disease". She also serves as a small group preceptor for medical students during their Medicine Clerkship and to Endocrine Fellows in Endocrinology Clinic. Additionally, Dr. Walker attends on the Endocrinology consult service. Dr. Walker is a member of the Institutional Review Board at CUIMC and serves as an Associate Editor for several journals including Bone and Endocrine Research. Her major research interests focus on primary hyperparathyroidism and

using new imaging technologies to study osteoporosis and the effects of various diseases and medications on bone health.

Benjamin Lebwohl, MD received his MD from Columbia College of Physicians and Surgeons in 2003, and then completed his internship, residency, and chief residency in internal medicine at Columbia. He stayed at Columbia as a fellow in Digestive and Liver Disease, during which time he obtained a Master's in Patient Oriented Research from the Department of Biostatistics at the Mailman School of Public Health. He joined the faculty of the Celiac Disease Center at Columbia University in 2010.

Dr. Lebwohl is Professor of Medicine and Epidemiology at Columbia University Irving Medical Center and serves as the Associate Clinical Chief of the Division of Gastroenterology and as the Director of Clinical Research at the Celiac Disease Center at Columbia University. He is Past President of the Society for the Study of Celiac Disease and collaborates with investigators in the United States and abroad in epidemiology, patterns of care, natural history, and therapeutics. He has co-authored more than 350 peer-reviewed publications. His research is supported by the National Institutes of Health, and past research funding includes the American Gastroenterological Association, the Celiac Disease Foundation, and the American Scandinavian Foundation.

Dr. Lebwohl is the Chair of the Gastrointestinal Drugs Advisory Committee of the United States Food and Drug Administration and serves as an Institutional Review Board Chair at Columbia University Irving Medical Center.

Henry Spotnitz, MD Track Director for Clinical Research, is George H. Humphreys II Professor of Surgery, chairman of the Columbia University Medical Center Subcommittee on Conflict of Interest in Research and a member of the Columbia University Senate's Information Technology Committee.

RECENT PROJECTS (2023-2024)

Prevalence and Predictors of Folate Deficiency in Patients with Celiac Disease
Celiac Disease in Black Patients
Long-Term Outcomes of Heart Transplantation in Adults with Congenital Heart Disease: The Impact of Single-Ventricle Versus Biventricular Physiology
Postpartum Beat-to-Beat Systolic Blood Pressure Variability and Cerebral Hemodynamics in Preeclampsia with Severe Features
Characteristics of adolescent anorexia nervosa before and during the COVID-19 pandemic
Utilizing mobile robotics for pelvic perturbations to improve balance and cognitive performance in older adults: a randomized controlled trial
An Unbiased Spatial Analysis of Relapsed and Refractory DLCBL
Differences in Phenotype in Sporadic Versus Inherited Desmoid Disease

GLOBAL AND POPULATION HEALTH

The Global and Population Health Track engages students with interests that go beyond the boundaries of clinical medicine and individual patient care. Students in this track explore the range of forces—medical, social, cultural, political, economic, and legal—that have an impact of the health of populations in the United States and around the world.

Global health is "an area for study, research, and practice that places a priority on improving health and achieving health equity for all people worldwide." In our conception, global health refers to the interplay of factors that affect health of populations without respect for national borders. The global in global health refers to the scope of problems, not their location. Population health brings significant health concerns into focus and addresses ways that resources can be allocated to overcome problems that drive poor health conditions. Population health is an interdisciplinary approach that utilizes non-traditional partnerships among different sectors of the community—public health, industry, academia, health care, local government agencies—to achieve positive health outcomes.

Thus, any project that seeks to define factors associated with poor health outcomes within a population and address ways in which resources on the individual and organizational level can be utilized to overcome poor health outcomes can be considered part of the Global and Population Health tract. Global health projects aim to understand and reduce health challenges in international or domestic settings and to cultivate deep cross-cultural understanding. These projects provide students with opportunities to learn about and experience global health directly and consider health beyond the clinical perspective.
Scholarly projects may be done in an international or domestic setting and use clinical or population-based research, professional or patient education, policy work or advocacy, humanistic or bioethical analyses, or other scholarly approaches to address a range of health issues including: infectious diseases; chronic diseases; children's or women's health; mental health; population health, demography, and aging; global health delivery and health systems; technology innovation; crisis and conflict; ethical issues; or another topic of interest.
Projects could build upon or add to ongoing projects (i.e., research, health interventions, educational activities) that aim to strengthen existing capacity and infrastructure on a long-term basis.

TRACK DIRECTOR

Michael T Yin, MD, MS, is Director for the Program for Education in Global and Population Health and the Director of the Global and Population Health Track of Scholarly Projects. Dr. Yin is Associate Professor of Medicine in the Division of Infectious Diseases and Co-director of the Biobehavioral Core of the HIV Center for Clinical and Behavioral Studies at NYSPI. His clinical work and research focus on optimization of HIV treatment and care. In particular, he is interested in prevention of complications associated with chronic HIV infection and antiretroviral therapy throughout the lifespan, from children with perinatal HIV acquisition to older adults living with HIV. He is an active investigator in HIV research networks such as the Advancing Clinical Therapeutics Globally for HIV/AIDS and Other Infections (ACTG) and the MACS/WIHS Combined Cohort Study (MWCCS) and maintains research collaborations in South Africa, China, and Brazil.

RECENT PROJECTS (2023-2024)

Placental abruption causes obstetric adverse outcomes like blood transfusion, preterm birth, and postpartum hemorrhage. Placental abruption is becoming more common
A qualitative approach to exploring biomedical and traditional care pathways and psychosocial needs for people with first-episode psychosis (FEP) in rural Mozambique
Laboratory and patient acceptability and feasibility of self-collected capillary blood samples for plasma cabotegravir drug level measurements to support safe discontinuation of long-acting injectable PrEP
Predictors of adjuvant endocrine therapy adherence in a real-world U.S. breast cancer population: An analysis of the 2010-2021 Medical Expenditure Panel Survey (MEPS)
Differentiated Service Delivery for people co-infected with drug resistant TB and HIV
Characteristics of n=223 Preschool-Aged Children in Port Loko, Sierra Leone
Project STAR 40 Years On: Contact Methodology and Health Outcomes

MEDICAL EDUCATION

Physicians are teachers. We teach patients and their families about health and disease. We teach students and colleagues about the practice of medicine. The skills involved in teaching and learning are integral to the practice of medicine.

Medical curricula are always in flux. The body of medical knowledge and set of skills is ever-changing; the technology available to deliver education and assessment is ever-advancing. Fabulous opportunities exist to create exciting and efficacious curricular content, perform necessary assessment of existing education, and expand our understanding of the medical education process. P&S has outstanding faculty interested in medical education and interested in working with students on medical education projects.

There are many types of scholarship in medical education, and many types of projects that may be conducted as part of this track:

- The implementation and/or evaluation of new curricula or new technology.
- The evaluation of existing teaching activities towards improving their quality.
- Medical education literature review in an area of interest.

Experiences in the medical education track will according to the individual project, but may include a combination of:

- Mentorship with the medical education faculty
- Participation in P&S medical education committees
- Teaching in existing courses and programs
- Developing, implementing and evaluating new courses
- Exploring innovative uses of education technology
- Submitting scholarly work to MedEd Portal

Students will have access to a wide range of resources, including faculty throughout Columbia University, the Center for Education, Evaluation and Research (CERE), and the Columbia Center for Teaching and Learning (CTL).

TRACK DIRECTORS

Marina Catallozzi, MD, MSCE is an Associate Professor of Pediatrics at the Vagelos College of Physicians & Surgeons and of Population and Family Health at the Mailman School of Public Health and Vice Chair for Education in the Department of Pediatrics.

Dr. Catallozzi received her undergraduate and medical degrees at Brown University. She was a Pediatric Resident, Chief Resident and Adolescent Medicine Fellow at the Children's Hospital of Philadelphia and received a Masters of Science and Clinical Epidemiology from the University of Pennsylvania. She serves as the Pediatric Clerkship Director and the Director of Pediatric Medical Student Education at the Vagelos College of Physicians & Surgeons since 2016. At Mailman School of Public Health, Dr. Catallozzi is the Director of the General Public Health program, the largest accelerated MPH program in the school, and the co-leader of the Sexuality, Sexual and Reproductive Health Certificate. Dr. Catallozzi's research has focused on adolescent and young adult access to confidential and clinical preventive services, adolescent relationship violence, adolescent and parent communication and decision-making in clinical trial participation and adolescent pregnancy prevention.
Dr. Catallozzi is an Adolescent Medicine specialist and is board certified in both Pediatrics and Adolescent Medicine. She has an active adolescent medicine practice in Washington Heights and is dedicated to improving the health of the community; she uses a strengths-based approach to adolescent patient care, programming and research.

Shubha Dathatri, PhD, EdM, MA is an Assistant Professor of Medical Education and currently serves as Senior Director, Medical Education & Learning with the Center for Education Research and Evaluation (CERE) at the Columbia Vagelos College of Physicians and Surgeons.

Dr. Dathatri earned a PhD in Educational Psychology from the Stanford University School of Education, an EdM in Human Development and Psychology from the Harvard University Graduate School of Education, an MA in Comparative and International Education from Teachers College Columbia University, and a BS in Social Psychology from Cornell University.

Dr. Dathatri's initial experiences in the field were focused on graduate medical education as she served as a surgical educator within departments of surgery at the Stony Brook University School of Medicine and the Baylor College of Medicine. In her current role, Dr. Dathatri's efforts across both undergraduate and graduate medical education platforms are focused on providing clinical educators with effective tools to teach, to evaluate learner performance, and to reflect on the efficacy of their own educational practices. Through an exploration of pedagogical practices in medical education, her work involves developing and refining evaluation and assessment

instruments, analyzing qualitative and quantitative data, and writing analytic case reports assessing the impact, effectiveness, and sustainability of the programs and interventions under consideration. She is dedicated to using educational and social science research tools to improve instructional, evaluation, and assessment systems and to enhance learning outcomes in medical education.

Monica L. Lypson MD, MHPE is the Vice Dean for Education at Columbia University's Vagelos College of Physicians and Surgeons and serves as the Rolf H. Scholdager Professor of Medicine at Columbia University Irving Medical Center. She previously served as a professor, and Vice-Chair of Medicine, Division Director of General Internal Medicine at The George Washington University School of Medical and Health Sciences. She has been serving the generalist community as President-elect, President and Past President of the Society of General Internal Medicine. In these role, Dr. Lypson provides visionary leadership for a diverse group of faculty and students involved in educational and innovation, medical education research, and community outreach. She is committed to creating and supporting the academic careers of faculty members interested in intersection of education, patient centered care and research.

Her work focuses on innovations and improvements in health professions education and assessment, health equity, workforce diversity, faculty development, medical care delivery, and provider communication skills. Dr. Lypson is a board-certified general internist with significant leadership experience in clinical, educational, and administrative arenas.

RECENT PROJECTS (2023 – 2024)

Engaging Continuous Quality Improvement Data and Reporting to Foster Action Planning and Implementation
Examining Grading Structures and Assessment Opportunities along the Curricular Continuum: Columbia College of Dental Medicine
Developing Online Modules on Clinical Reasoning and the Physical Exam for Preclinical Medical Students
Enhancing procedural skill acquisition in the preclinical curriculum through a self-directed online module and in person skills labs
Development of Interactive Educational Ultrasound Videos for Medical Students

NARRATIVE AND SOCIAL MEDICINE

The Narrative and Social Medicine Track welcomes students who want to investigate the personal, cultural, and meaning-making dimensions of health and health care. How do individual patients experience pain and suffering? What do clinicians face as they deliver care? What does it mean to be well? Students in this track grapple with questions that arise beyond the biotechnical explanations of disease, from fundamental questions about embodiment and mortality to justice questions about poverty and health. Think of this track as a place to wonder about the nature of our work: why we do what we do as physicians, what values guide our profession, how our training shapes us, and how to shape our futures in medicine. Think of it also as a chance to learn about patients' needs and desires as they face illness and its sequelae.

Narrative Medicine includes studies in the medical humanities—literary studies, history, philosophy, ethics, and religious studies as they pertain to aspects of health and health care. At Columbia, we include the visual and performative arts as well. Social Medicine refers to studies of health policy, economics, political aspects of health, quality improvement, and medical anthropology and sociology. We will sponsor projects of humanities and ethics scholarship, studies of patients' or clinician's personal experiences of illness or health care, projects in social justice in health/health care, creative representations that pertain to health, and policy/politics surrounding health care. Projects in this track adopt creative means of expression, intellectual and research methods from humanities disciplines, and social science qualitative research approaches. Mentors and supervisors are drawn from many units of the university including the health sciences, the school of the arts, arts and sciences, the school of journalism, and the law school.

TRACK DIRECTOR

Rita Charon, MD is a general internist and literary scholar at Columbia, Professor of Medicine at CUMC, and Professor and Chair of Medical Humanities and Ethics. Dr. Charon graduated from Harvard Medical School in 1978 and trained in internal medicine at the Residency Program in Social Medicine at Montefiore Hospital in New York. She completed the Ph.D. in the Department of English of Columbia in 1999, writing on the late works of Henry James and on literary analyses of medical texts.

RECENT PROJECTS (2023 – 2024)

Combatting High Rates of Pediatric Heart Transplant Complications Through Narrative Tools" creates a visual arts resource to orient children and adolescents undergoing heart transplant
Pregnancy in Medical Training: Current Policies, Outcomes, and Biases" illuminates the unique challenges of pregnancy during medical school and provides guidance for students who pursue pregnancy during medical training
A Photo-essay on Liminality in Japanese and American Healing Spaces" adopts the concept of liminality, or thresholds, between healing environments and the ordinary non-medical world. Photos of a Japanese hospital and a US hospital reveal deep assumptions about the nature of illness and care
Exploring the Modern History of Autism Spectrum Disorder: Language and Labels" exploring how autism spectrum disorder (ASD) has been conceptualized in both medicine and society at large through the 20th and 21st centuries
Current Labor-Organizing Movement among Physicians" examines the increase, since 2021, in unionization among residents and to understand and to clarify the nature of the current movement from economic, political, and clinical perspectives

MENTORING

HISTORY OF MENTORING

As Odysseus left Ithaca to fight in Troy, he entrusted the care of his son Telemachus to his old friend Mentor. To Telemachus, Mentor was a trusted friend and teacher who provided perspective and wise counsel gleaned from experience.

The mentoring relationship has proved an invaluable part of personal and professional development. Joseph Haydn mentored Ludwig van Beethoven and Beethoven, in turn, mentored Franz Liszt. Many such relationships exist in medicine.

ACADEMIC MENTORS

The College of Physicians & Surgeons has had a long tradition of enriching the medical school's curriculum with longitudinal relationships with faculty. Here, mentors function as role models, teachers, advocates, advisors and guides. The scope of the mentoring relationship is unique to each mentor-mentee pair but should be discussed early and often.

STATISTICAL OR QUALITIATIVE CONSULTATION

If you need to request a statistical or qualitative consultation, please email psspp@cumc.columbia.edu and include a brief paragraph describing the nature of your project and the type of statistical or qualitative analysis you wish to complete. Dr. Pajvani will then connect you with our Statistician or Qualitative Consultant.

ROLE OF THE MENTOR

In the context of the Scholarly Projects Program, mentors provide supervision and guidance to medical students in planning, executing and recording their scholarly work. The role of the mentor evolves with the project and with the student:

Introduction and exploration: In the first phase of mentorship, the potential mentor meets with the student to identify opportunities for collaboration and to determine whether the pair's interests, resources and interpersonal styles are compatible. If so, the pair will discuss a *Mentor-Mentee Agreement*. If not, the faculty member will refer the student back to the Track Director and, if they wish, to colleagues who may be a better fit for the student.

Planning: In the second phase of mentorship, the selected mentor guides the student in preparing a Project Proposal that balances ambition with practicality. Scholarly projects should be innovative but may leverage existing resources (i.e., projects and initiatives already underway) to optimize the likelihood that in four months the student will achieve the project goals. The proposal must be approved by the mentor before submission.

Execution: In the third phase of mentorship, the mentor oversees the student's work along the proposed trajectory. The student and mentor are expected to meet weekly to discuss the project. As unexpected problems or opportunities arise, the student and mentor will continually revise the plan for the remainder of the project.

Completion: In the final phase of mentorship, the mentor will guide the student in preparing the Capstone and poster requirement according to Track-specific standards. The mentor will also submit a Final Evaluation of the student's work, at which time the mentor will be compensated for their contribution. Please note, primary mentors must be Columbia University faculty.

RESOURCES ON MENTORING

Sambunjak D, Straus SE, Marusić A. Mentoring in Academic Medicine. JAMA. 2006;296(9)1103-1115. Zerzan JT, Hess R, Schur E, Phillips RS, Rigotti N. Making the most of mentors: a guide for mentees. Acad Med. 200;84(1): 140-4

MENTOR-MENTEE AGREEMENT

The agreement is between the medical student (mentee) and the Scholarly Project mentor. We hope that that mentee and mentor have discussed the frame of their relationship in the context of their project and have common expectations of one another. We also hope that it provides sufficient flexibility as we recognize that each mentor-mentee pair is unique and will have their own working style.

Students whose mentor is not a CU faculty member should have an agreement with their primary CU faculty mentor in consultation with their Track Director.

MENTEE'S RESPONSIBILITIES

Schedule regular meetings with mentor at a mutually determined time and location and for a mutually determined duration - we suggest meeting weekly

Update mentor on progress regularly, including timely notification of unexpected delays or complications as the mentor will complete the final evaluation of overall work
Prepare drafts of monthly Progress Reports and the Capstone Requirement for the mentor's review with adequate lead time to permit revision as necessary

Work on the project consistently throughout the time allotted for the Scholarly Project and inform the mentor, Track Director and Scholarly Projects Program Manager, of any interruptions or absences
Attend Scholarly Projects didactics (as offered) regularly

MENTOR'S RESPONSIBILITIES

Meet regularly with the student and monitor progress toward the proposed objectives

Provide regular constructive feedback to the student on progress and performance

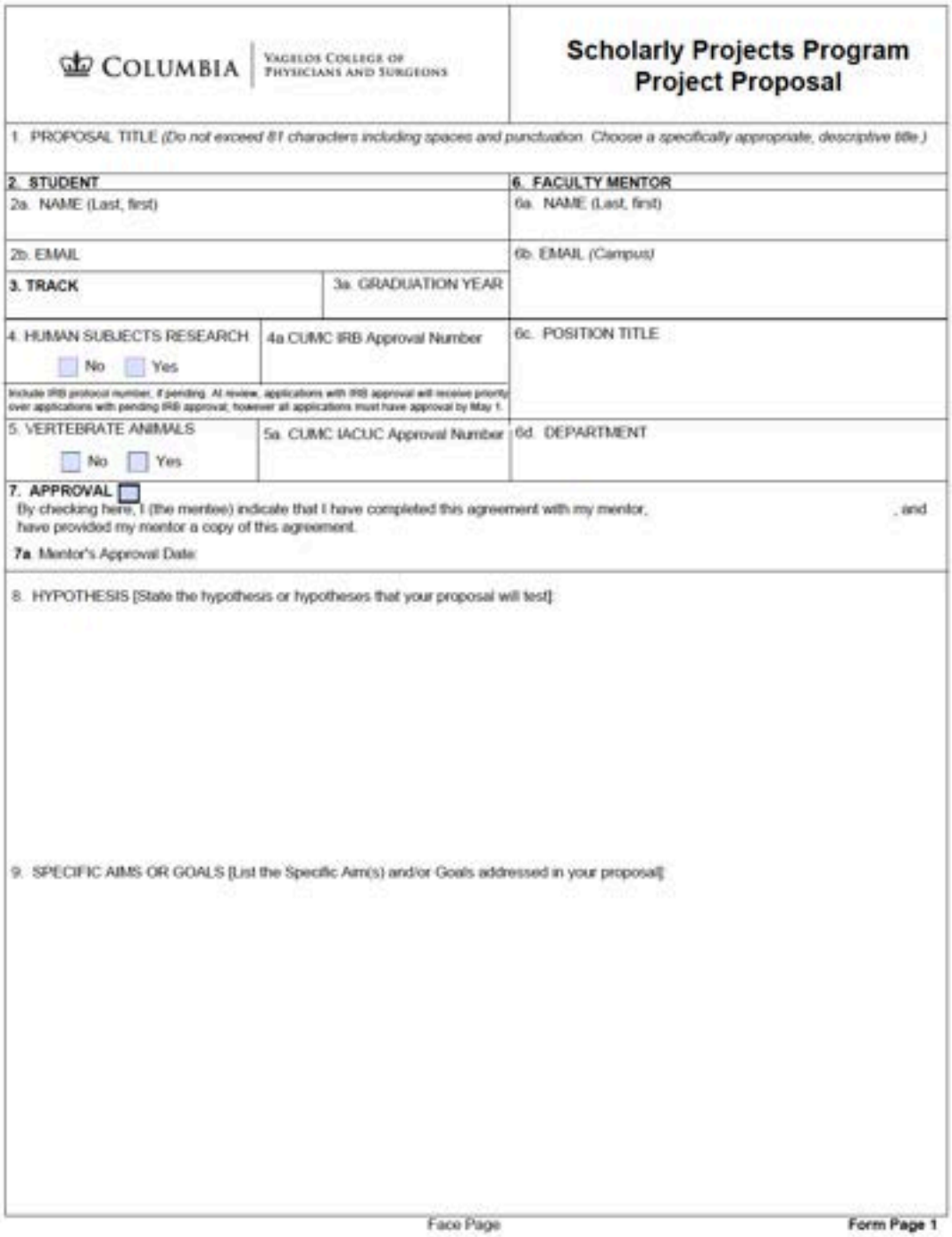
Reach out to Track Director with any problems that are not amenable to resolution between student and mentor

Approve, review and/or provide input in the case that mentee requests an extension

PROJECT PROPOSAL

The proposal should be brief (2-3 pages), with sufficient detail to provide the reviewers insight into your plans, using diagrams, graphs and lists if helpful. Please open a ticket at psofficeofed.uservoice.com with any questions.

Revision Date: 07/15/2024



COLUMBIA | Vagelos College of Physicians and Surgeons

Scholarly Projects Program
Project Proposal

1. PROPOSAL TITLE *(Do not exceed 81 characters including spaces and punctuation. Choose a specifically appropriate, descriptive title.)*

2. STUDENT

2a. NAME (Last, first)

2b. EMAIL

3. TRACK

3a. GRADUATION YEAR

6. FACULTY MENTOR

6a. NAME (Last, first)

6b. EMAIL *(Campus)*

4. HUMAN SUBJECTS RESEARCH ☐ No ☐ Yes

4a CUMC IRB Approval Number

Include IRB protocol number, if pending. At review, applications with IRB approval will receive priority over applications with pending IRB approval; however all applications must have approval by May 1.

6c. POSITION TITLE

5. VERTEBRATE ANIMALS ☐ No ☐ Yes

5a. CUMC IACUC Approval Number

6d. DEPARTMENT

7. APPROVAL ☐

By checking here, I (the mentee) indicate that I have completed this agreement with my mentor, _____, and have provided my mentor a copy of this agreement.

7a Mentor's Approval Date:

8. HYPOTHESIS [State the hypothesis or hypotheses that your proposal will test]:

9. SPECIFIC AIMS OR GOALS [List the Specific Aim(s) and/or Goals addressed in your proposal]:

Face Page **Form Page 1**

10. BACKGROUND [Summarize the background of and rationale for your proposal, specifically what was already known about the question being addressed]:

11. SIGNIFICANCE [State the significance of the proposed project. This should be a statement of what your study will contribute to the field and to your professional development]:

12. APPROACH (METHODS) [Summarize your anticipated methods, materials, and plan for data analysis. This can include a description of the study population and the rationale for choosing the population, a description of the study design including the manipulations and techniques that will be used and appropriate controls, a description of what parameters will be measured, a description of how the data will be analyzed, etc. For projects that do not involve quantitative analysis, this section should describe what approach you plan to pursue and how you will go about synthesizing your findings]:

13. SAMPLE SIZE & POWER* [Provide an estimated sample size needed to detect the effect you are trying to demonstrate or the available total sample size (Total N and N per group) and estimated effect size you can detect with the available sample]:

14. STATISTICAL/QUALITATIVE METHODS CONSULTATION* [Please indicate if you have or have not met with a statistician or a qualitative consultant regarding study design, sample size, power calculations, or synthesizing your findings, and provide the name of the consultant]:

15. BIBLIOGRAPHY [Authors, titles of article, journal, book, volume, pages, year; list citations numerically in the order in which they appear in the application]:

16. TIMELINE [Review the timetable for the project and provide an outline indicating what aspects of the project will be completed each of the four months]:

17. STUDENT ROLE [Clearly state the scope of your work and how you anticipate working with your mentor. If you will be involved in a project already in progress or will be working on a group project, please include a statement on your specific role in the project]:

18. EXPECTED DELIVERABLE [Describe what you will produce to summarize/synthesize your work. The general guideline is that capstones will be in the form of 15-20 page manuscripts, but alternate media are invited in consultation with your track director]:

19. ETHICAL APPROVAL [Please state if your project requires IRB review and/or approval and, if so, at what stage is your submission (approved, submitted, in development). Note: If your project involves the use of humans and/or animals, you will not be able to start until IRB and/or IACUC approval is obtained]:

20. BUDGET [Please include an estimate of any anticipated expenses associated with your project. Each student completing a scholarly project is eligible for up to $500 to defray expenses related to travel, presentation or other costs associated with the project]:

21. BROWN & BASSETT [If you are a Brown Scholar or a Columbia Bassett student, please describe the relation, if any, of your scholarly project to your Brown or SLIM projects]:

22. ORCID ID [Please provide your ORCID ID to help us continue tracking your Scholarly Project work. If you don't have an ORCID ID, please register here: https://orcid.org/register]:

***May not be applicable to all tracks.**

FUNDING

All students are eligible for a reimbursement of up to $500 for expenses related to your project. Typical expenses include supplies, travel costs, conference registration and consultation fees. If you anticipate your expenses exceeding this amount or if you have an unusual expense, please contact The SPP Director to discuss your needs.

Process

To make the reimbursement process as smooth as possible, please follow the following steps:

- Make sure you have posted your finalized project proposal to Courseworks. Proposal must be approved before requesting funding.
- Download the ***Scholarly Projects Funding Request Form*** from Courseworks and return to psspp@columbia.edu.
- Download and print the ***Tax Exemption Form*** from Courseworks for your use when purchasing items. Please note that you will NOT be reimbursed for sales tax on these purchases.
- Email ALL original receipts for items purchased to the Scholarly Projects Program email at psspp@columbia.edu. Remember to keep all receipts, as you will not be reimbursed without these. Reimbursements typically take up to 14 business days.

Acknowledgment of Funding for Scholarly Projects

Students who have received any funding, including but not limited to the Student Projects Program (SPP) stipend or the Friedman Award, in support of manuscripts submitted for journal publication must include the following acknowledgment in the manuscript:

This research was supported by Columbia University Student Research at the Vagelos College of Physicians and Surgeons (VP&S).

REIMBURSEMENT REQUESTS

TEMPLATE

Scholarly Projects Program Funding Request Form

Please list your project expenses (or anticipated expenses) for review and approval. Send this form along with receipts combined into one file to psspp@columbia.edu

**Project expenses are limited to $500 per student.*
**All approved requests will be disbursed as reimbursements.*

Student	Last, First	UNI	Expected year of graduation	Citizenship
Mentor	Last, First	UNI	Department	
Track	Indicate your SP track			
Title	Indicate your approved project title			
*This is my **[first]** SPP stipend reimbursement request. Based on my previous request(s) I have $____ available.*				

Category	Description (Itemize and briefly describe how this item pertains to your project)	Total
Consultant		
Equipment		
Supplies		
Travel		
Other		
Total Funds Requested		$

SPP Director Approval (please do not write below this line – for internal use only)	Date

SARAH AND ARNOLD P. FRIEDMAN AWARDS

In 2012, Dr. Carol Ludwig (P&S Class of 1974) generously committed funds to establish the Sara and Arnold P. Friedman Awards. These awards support student expenses for selected projects requiring funding beyond the VP&S limit of $500. Awards are granted based on the merit of the proposed project.

Application Process

The Awards committee meets three times each academic year (February, June and October) to review applications and grant awards. To apply for the Sara and Arnold P. Friedman Awards, please send a complete application, including a brief letter of support from your mentor to psspp@columbia.edu. Applications can be found in Courseworks. Please note global health projects may require additional application materials available from the Scholarly Projects office. Application deadlines are at noon on ***February 1, June 1 and October 1***. Late applications are not accepted.

Suitable Expenses and Guidelines

- $500 SPP stipend must be exhausted before applying for the Friedman Award
- After first exhausting the $500 SPP stipend, you may apply for the Friedman Award to support either research related expenses or travel to disseminate SPP research findings at domestic professional meeting or conference. Friedman Award will support up to $1000 for research related expenses or 50% of reimbursable travel expenses up to maximum of $1000. For research related expenses, applicants must provide clear justification for the requested funds.
- The Friedman Award does not cover publication fees.
- Friedman Award is available to support attending one conference per student with up to 3 nights of accommodation. The most cost-effective method of expense must be chosen (i.e., travel, accommodations, etc.). The cost of public transportation is covered (Ubers/Lyfts, ride-shares, car rentals and gas, are not covered). Presentations at international conferences are discouraged but may be justified if there is no alternative domestic conference relevant to the SPP research topic.
- Committee will consider requests to cover expense of no more than one conference.
    - Note, Dean's Conference funds may be requested to cover a portion of an additional conference (reach out to studentresearchatps@cumc.columbia.edu for more information)

- Research posters may be printed via PosterNerd.com - the total cost to print a 36x48 poster + shipping is approximately $55 using promo code: COLUMBIAPS

- Alternate printing methods may be used; however, committee will not grant funding poster printing costs exceeding $55

FINAL ASSIGNMENTS – CAPSTONE AND POSTER

The purpose of the Capstone is two-fold: (i) to reflect the rigorous intellectual engagement with the scholarly project work, and (ii) to document the progress made towards the goals of the scholarly project. At the completion of the scholarly project work, students are required to submit the Capstone, a 15-20 page paper that elaborates the purpose of the scholarly project work and details the process and results of the project.

The recommended length is 15-20 pages not including references, but for those of you who will be submitting your work to an academic journal, the format and length should be dictated by the journal's Instructions for Authors. If you have not already selected a journal, discuss this with your mentor. For those of you who are in the Medical Education Track or the Narrative and Social Medicine Track, the product that you produced (course content, opinion piece, etc.) will form the bulk of your capstone, along with the rationale for the project and reflections on your research experience. In these cases, the content is more important than the length.

Apart from the capstone and poster, the most important requirement for the Scholarly Project is a passing grade from your mentor. This simply requires that your mentor review and be satisfied with the work that you put in to your project, no matter where you are in the timeline of your research.

In some cases, papers will be accompanied by additional resources that were developed as part of the scholarly project work (e.g., a learning resource, a creative work, etc.), but is similarly not required. Students will also be required to create a Digitized Poster for publication on the Scholarly Projects Program web site. You can find resources for creating a poster on the Courseworks site, and examples on the SPP website.

The Capstone will serve as the basis for determining satisfactory performance of the scholarly project work; the electronic poster will serve the growing community of students and faculty engaged in student scholarly work by detailing the successes and challenges met along the way.

The project mentor and Track Director will evaluate the Capstone and the Digitized Poster. Final grade will be Pass/Fail.

Guidance for Hypothesis-Driven Projects

Capstones for hypothesis-driven projects should take the form of a scientific paper. Because the time is short, results may be limited. Nonetheless, four months is sufficient to learn a lot about your topic. Your Capstones should be written clearly and demonstrate your satisfaction of

Glassick's criteria: clear goals, adequate preparation, appropriate methods, significant results, effective presentation and reflective critique (Glassick, 1997). The following are elements of a traditional scientific paper:

Abstract. Summarize in one page what you have accomplished, including Background, Methods, Results, and Discussion sections.

Introduction. What is the problem? Why is it important? What is known from previous work? Where has progress been slow? The relevant literature should be reviewed, with proper citation.

Methods. Methods should have enough information to explain how a technique works, but great detail need not be included except as references. If a new technique has been developed, detail is warranted. If appropriate, please describe your statistical approach to study design (i.e., power calculations, etc.).

Results. Results describe the outcomes of your investigation. Typically, this would include 1-3 illustrations and 1-2 tables summarizing relevant data. You should prepare your own graphs and tables, so that you will learn the mechanics of doing this and also of the statistics involved. Please explain your results carefully.

Discussion. The discussion should build on the introduction, but with results now included. Feel free to discuss your ideas for new research opportunities as long as they are critical assessments.

Guidance for Intellectual & Creative Projects

Intellectual work may take many forms, but will also be evaluated by Glassick's criteria, with particular emphasis on the coherence of ideas, evidence of due research in the scholarly literature, originality of production and quality and clarity of the writing.

Submitting your Capstone

Your Capstone and Poster should be submitted in Courseworks on the final day of your final Scholarly Project month. Prior to submission, your mentor must have reviewed and approved of your capstone and poster. Once submitted, your mentor will complete an evaluation in OASIS, and your Track Director will review and submit a Pass/Fail grade.

Resources

Endnote, PubMed, and William Zinsser's On Writing Well.

FINAL EVALUATION

The Capstone is the scholarly product describing the student's work over the four months of her/his scholarly project. Mentors review the Capstone to comment on the student's fulfillment of Glassick's Criteria of scholarship. Track directors assign the final grade.

MENTOR EVALUATION TEMPLATE

Preview Evaluation

SPE - Scholarly Project Program [Version: 2]

Student Performance Evaluation

SPE - Scholarly Project Program

Return to Evaluation

Student Level	Student level

Course Information

Date	Course	Location	Weeks
01/01/2006 - 01/31/2006	XXX-YYY: Department Course	Location	8

Evaluation Period: 01/01/2006 - 01/31/2006

Faculty: Evaluator name

Student: Student name **Email:** cumc@oasisscheduling.com

Mentors: The student should have provided you with the final draft of his/her capstone. Please assess the student's performance over the course of your work together.

Track Directors: The student's capstone is available for your review on CourseWorks. Please assign the final grade and sign-off

Using the 5-point curriculum-wide scale provided, please rate the student's performance in each of the below competency descriptors. The behaviors or observations used to describe each level are EXAMPLES, and do not comprehensively include all possible attributes, observations, or behaviors. Please skip any questions that you are not able to evaluate a student on.

Level 0: Not yet performing at Level 1.
Level 1: Performance consistent with early preclinical students.
Level 2: Performance consistent with early predoctoral fellow; competent for MCY progression
Level 3: Performance consistent with mid predoctoral fellow; competent for D&I progression
Level 4: Performance consistent with late predoctoral fellow, competent for graduation.
Level 5: Performance consistent with postdoctoral fellow, consistent with a resident

	Early Predoctoral Fellow	Mid Predoctoral Fellow	Late Predoctoral Fellow
Knowledge	Rudimentary	Improving	Appropriate
Methodology	Book knowledge	Needs assistance with research techniques	Successfully executes Multiple research techniques
Data Analysis	Book knowledge	Needs assistance with data analysis	Successfully executes Necessary data analysis
Project	Initiated	Partially completed	Completed
Communication	Has not presented	Has presented in the lab	Has presented outside The lab

1 * **Demonstrates understanding of methods of inquiry/investigation.**

- ○ Not yet at level 1
- ○ Knowledgeable of steps of inquiry but limited independence in developing own question, analytic/creative plan etc.
- ○ Knowledgeable of steps of inquiry, student adapted research question, methods, design, analytic/creative plan of mentor and/or required significant assistance from mentor to develop these elements de novo.
- ○ Semi-independently identified a problem for inquiry from literature, created a hypothesis and reasonable plan/design to test it, as well as collect and analyze data.
- ○ Good understanding of literature & research design such that able to use existing evidence to formulate an inquiry question, research or creative plan/design with minimal to no assistance from mentor; demonstrated growth in methodological and analytic skills specific to area of inquiry over course of project.
- ○ Identified a critical knowledge gap; advanced knowledge of literature allowing student to independently formulate an inquiry that specifically addresses knowledge gap; sophisticated hypothesis, research/creative design or analytic plan tailored to specific problem; gained sophisticated or advanced methodological, laboratory or analytic skills over course of project

2 * **Develops a research question, engages in investigation to advance understanding, and contributes to the dissemination of knowledge and of discovery.**

- ○ Not yet at level 1
- ○ Did not fully engage in development, execution or completion of project and/or met minimum requirements (i.e. abstracts, papers, posters, or creative work, would require substantial revision for submission for journal/national presentation; data collection or analysis incomplete or inaccurate).
- ○ Student engaged in and contributed to at least one or more aspects of developing the project question, design, or its execution. Satisfactorily completed project but deliverables (abstracts/posters/presentations/creative work) required major revisions; and/or data collection suboptimal.
- ○ Student contributed to development of research question, design and execution of project in thoughtful and knowledgeable way that demonstrated preparation/knowledge of methods and literature; completed research project and created solid abstracts/poster/presentations/creative work requiring minimal revision prior to journal submission/national presentation; data collection accurate and complete.
- ○ Student substantially contributed to the development of the research question, project design, data analysis, drafting of results that demonstrated advanced knowledge/research skills/preparation; completed research project; well-written, organized, clear deliverables containing all necessary components; could be utilized for journal submission or presentation (but student did not yet do so or may not have had opportunity to).
- ○ Student successfully completed project to which they substantially contributed; led to a very high quality paper, poster or creative work as well as presentation of findings at a regional, national or international meetings or via manuscript submission to a journal. Student able to convey how work advances the field and identify new areas/next steps of investigation.

3. * **Adheres to ethical behavior in all realms of inquiry.**

- ○ Not yet at Level 1
- ○ Student demonstrated understanding of importance of research ethics/protection of research participants/animals, confidentiality, etc. (e.g. completed necessary trainings, obtained necessary IRB/IACUC approval prior to engaging in research).
- ○ Created IRB/IACUC/QI protocol and informed consent forms that maximized benefits/minimized risks with moderate assistance from mentor/research team; Carried out informed consent procedures with participants with assistance.
- ○ Semi-independent creation of IRB/IACUC/QI protocols and informed consent forms that maximized benefits/minimized risks; interacted with research participants professionally; treated private information appropriately; Independently conducted informed consent procedures after observation.
- ○ Independent creation of IRB/IACUC/QI protocols, consent forms or modifications of such components; demonstrated great transparency/forthrightness regarding any protocol deviations and their impact
- ○ In addition, modeled ethical principles of research, transparency and data integrity; took proactive steps to anticipate and prevent basic ethical pitfalls/problems; went beyond required steps to enhance knowledge of research ethics; served as an advocate for research participants/patients etc.

4. * **Demonstrates initiative, responsiveness, reliability, trustworthiness and accountability**

- ○ Not yet at level 1
- ○ Participated in project but needed continuous direct assistance in meeting expected deadlines. Limited ability to request help or guidance.
- ○ Participated in project with moderate support; reliably carried out steps outlined by mentor/research team with assistance; still learning to anticipate & respond to project setbacks.
- ○ Participated in project and could be trusted to reliably carry out steps outlined by mentor/research team with minimal assistance; dealt with project setbacks effectively; independence grew over project.
- ○ Took initiative/ownership of project and was able to carry out tasks independently or semi-independently; asked for assistance/guidance appropriately; proactive in preventing &/or responding to potential setbacks.
- ○ Acted as the driving force or a leader in project, took accountability for setbacks or failures when appropriate; able to effectively problem solve, create alternate plans/modifications to project when necessary

5. * **Works and communicates effectively as a team member, including on interprofessional teams, to optimize outcomes.**

- ○ Not yet at level 1
- ○ Needed continuous direct assistance to achieve effective teamwork & communication. Team was not kept up to date with challenges/problems.
- ○ Responded to team needs with assistance. Needs to improve in proactively engaging team members.
- ○ Communicated regularly and constructively with mentor and team; able to resolve conflicts with guidance.
- ○ Initiated and engaged in proactive constructive regular contact with mentor/team members to provide updates and move the project forward, including communication to pre-empt problems; able to resolve conflicts independently.
- ○ Led communications with research team to execute project/move the project forward; presented project findings effectively; resolved conflicts in a professional and equitable manner even in challenging situations.

6. * **Continually incorporates feedback and self-reflection to identify personal strengths and goals for growth.**

- ○ Not yet at Level 1
- ○ Minimally receptive and/or did not incorporate feedback
- ○ Beginning to demonstrate ability to receive and incorporate feedback when prompted.
- ○ Demonstrated willingness & ability to receive and incorporate feedback from mentor and team.
- ○ Able to identify personal strengths and weakness in inquiry and proactively take initiative to address weaknesses.
- ○ In addition, is able to provide feedback to project team members to enhance their performance and improve the overall project.

7. * **Please share specific observations for the learner regarding their inquiry skills, ability to seek & apply feedback, and professionalism. Please note strengths, areas for improvement and specific suggestions for how to improve.**

8. **Articulates structural and historical inequities and identifies strategies to mitigate systems of oppression in order to minimize inequities & underrepresentation in research & health care options.**

Not yet at level 1
Unaware or unable to articulate the presence of historical inequities/underrepresentation in research & health care outcomes.

Articulated knowledge of historical inequities, underrepresentation of different groups in research & health care outcomes.

Articulated knowledge of historical inequities, underrepresentation in research and their effects on present day research participation/health care outcomes.

Used knowledge of historical inequities in research to prioritize inclusion of underrepresented populations in project and justice.

Designed and executed steps in project to address or minimize inequities & underrepresentation in research & health care options; commitment to justice.

IRB POLICY ON STUDENTS AS RESEARCHERS

SCOPE

This Policy applies to all human subject's research conducted by students at Columbia University ("Columbia") and clarifies which research projects or activities require review by the Columbia Institutional Review Board (IRB) for the protection of human subjects in research.

BACKGROUND

All federally-supported or conducted activities constituting human subjects research must be reviewed by an IRB prior to initiation of the research in accordance with regulations of the Department of Health and Human Services (45 CFR 46) and the Food and Drug Administration (21 CFR 56) (collectively, the "Regulations") unless such research activities are exempt from review pursuant to 45 CFR 46.101(b) and 21 CFR 56.103(b) ("Exempt Research"). It is Columbia's policy that such requirements apply to all human subjects research, whether or not federally-supported, including research by students, and that research that may constitute Exempt Research must also be submitted to the IRB for a determination that such research should in fact be considered exempt.

Human subjects research is defined as follows: "Research": a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. "Human subject" is a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.

The process of learning about and practicing research methodology (i.e., pedagogical research) may require student investigative activities that involve humans but do not, under the Regulations, require IRB review because such activities do not fall within the federal definition of Research (as defined above). Recognizing that some pedagogical research activities may present more than minimal risk of harm to participants and considering the relative inexperience of students in applying research methods, Columbia requires submission of some student projects that do not meet the federal definition of Research, in order to protect the subjects in such activities. For the sake of clarity, Section IV.A. of this Policy articulates the criteria of projects that do not have to be submitted for review. All student projects that involve humans and do not meet such criteria must be submitted for IRB review.

POLICY

Except as provided in (A) below, all research activities involving human subjects and conducted by Columbia students must be approved by the IRB prior to the initiation of the research activity. This Policy applies to human subjects research activities that are broader than those defined in the Regulations and includes classroom activities that may not be considered Research, but may involve greater than minimal risk to subjects.

In the case of student course-related research projects, it may be difficult at times to distinguish between those that require IRB review, and those that are designed simply to learn and/or practice research methodology. The IRB has established the following guidelines for determining when IRB review is necessary for projects that are related to an academic course or program.

A. Low Risk Introductory Research Methodology Exercises (No IRB submission required)

Student projects that are designed solely to provide students with an opportunity to learn or practice research methods do not require IRB review if they meet all of the following criteria:

(1) take place in a classroom, department, dormitory, or other campus setting, or in a public setting with generally unlimited access to the public, such as a shopping center, park, or street;
(2) involve only the learning of research techniques and are not designed to potentially advance the literature;
(3) involve no more than minimal risk to subjects (Minimal risk is defined as the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests); and
(4) utilize anonymous collection of data (i.e., with no names, social security numbers, or other direct identifiers; and without codes that can be linked to a list of names; and including no indirect identifiers or information that when combined would allow identification of the subject).

Research conducted over the internet will not be permitted under this category.

B. Research Projects, Directed or Independent (IRB submission required)

Any research conducted by students that involves human subjects but does not constitute a research methodology exercise or practicum, as characterized in Section IV.A. above, must be reviewed by the IRB. This includes, but is not limited to, all undergraduate and graduate research projects whether or not conducted to fulfill course or degree requirements, undergraduate senior, undergraduate honors, or masters' theses, and doctoral dissertations.

Research projects are either “Exempt Projects” or “Non-exempt Projects”.

(1) Exempt Projects

Student projects that constitute Exempt Research must be submitted to the IRB for determination that they are eligible for exemption. A complete listing of the federal exemption categories is attached as Appendix A and is also available online at: http://ohrp.osophs.dhhs.gov/humansubjects/g guidance/45cfr46.htm#46.101

When all students in a class are using similar methods of recruitment and data collection, in the same or similar projects that are no more than minimal risk to subjects, the instructor may submit a proposal to the IRB for determination that all such projects are exempt, rather than requesting such determination on a project-by-project basis.

(2) Non-exempt Projects

All non-exempt student research projects must be submitted individually for IRB review.

Non-exempt projects that are minimal risk will require either review by an experienced member of the IRB (“Expedited Review”) or review by a convened IRB (full Board review).

To be eligible for an Expedited Review, the research must involve: a) no greater than minimal risk to subjects; and b) procedures that fall into one or more of the categories of research identified as eligible for Expedited Review by the Regulations.

A complete listing of the federal expedited review categories is attached as Appendix B and is also available online at:

http://www.hhs.gov/ohrp/humansubjects/gui dance/expedited98.htm

Projects that are neither Exempt Research nor eligible for Expedited Review must be evaluated at a convened meeting of the IRB. In such cases, the protocol must be submitted sufficiently in advance of an IRB meeting to be added to the agenda and distributed for in- depth review prior to the meeting. For assistance in planning submissions, IRB meeting dates are posted on the Columbia IRB websites (click on “About the HRPP/IRB”; links to home pages are provided at the end of this document).

C. Responsibility of Faculty Advisors for all Student Research Projects

Columbia’s policy requires that, unless an appropriate waiver is obtained, the individual who is named as Principal Investigator (“PI”) on a research project must have a particular academic or research ranking in accordance with Columbia policy. No student researcher may serve as the PI

on a protocol that is submitted for IRB review; however, he/she should be named as a co-investigator.

Faculty advisors as well as student researchers must complete required training before conducting research with human subjects (or serving as a PI on student research projects). The training is available online; course details and specific instructions may be found on the Columbia IRB websites at:

http://cumc.columbia.edu/dept/irb/education/index.html#Required%20Training

It is the responsibility of the faculty advisor to determine when a student project that is conducted to fulfill a course requirement does not meet the definition of a research methodology exercise or practicum and must be reviewed by the IRB. Advisors should be familiar with relevant regulations and policies so that they may guide students in selecting the topic of their research project, and assist in preparing review materials for the IRB. In addition, the advisor and student have a shared responsibility to ensure that all research activities, whether research methodology exercises or practice, exempt projects, or protocols that have received IRB approval (whether expedited or full Board), are conducted according to the approved protocol and the ethical standards of the relevant discipline.

D. Responsibility of Students for all Student Research Projects

It is the responsibility of the student researcher to conduct the study in accordance with the IRB-approved protocol. Any change to the research must be submitted for prospective IRB approval prior to implementation. If a change is necessary to minimize or avoid harm to currently enrolled subjects, and there is no time to obtain IRB approval, such a change should be implemented immediately by the researcher. Even in this latter situation, a modification must be submitted as soon as possible to the IRB. Students must also ensure that the research study maintains a current IRB approval. The PI of the study must submit the protocol for re-approval by the IRB at least 60 days prior to the expiration of IRB approval, if such research will continue beyond the expiration date. Once IRB approval expires, all research activities must cease until re-approval has been granted by the IRB. Students must keep their mentors informed of the progress of the research and any harm(s) that may occur to human subjects as certain harms or increased risks to subjects must be reported to the IRB in accordance with the Reporting of Unanticipated Problems policy. When the study has been completed, or if the student will complete his/her relationship with Columbia and Columbia will no longer be involved in the research, the student must ensure that a "Termination" has been submitted to the IRB in RASCAL. Columbia IRB Website. CUMC IRB: http://www.cumc.columbia.edu/dept/irb/