

Faculty's Name	Department	What is the general research problem or project that the student will be completing under your mentorship?	What specific question will the student addressing during their rotation, and can it be completed during the rotation?	What type of study will the student be working on? What is the implementation plan for curricula?
Hemant Khanna	Ophthalmology & Visual Sciences	My laboratory is interested in understanding how photoreceptor ciliary structure and function degenerate due to mutations in a retinal disease gene? Our model system is CRISPR/Cas9-induced pig model, which is highly similar to the human counterpart.	Does the ciliary gene EYS (eyes shut homolog), a common cause of inherited retinal degeneration, affect ciliary trafficking and photoreceptor morphology in the pig retina?	Animal model characterization-Pigs and mice. The research plan will include sectioning and staining the mutant and control retinas with different antibodies and interpret results.
Gail March Cohen	Office of Undergraduate Medical Education	Research the curriculum opportunities and create a series of online educational videos to prepare residents, fellows, graduate students, and advanced medical students to teach and assess medical students.	What is the core curriculum presented as self-directed educational videos needed to prepare residents and non-faculty instructors to prepare to teach and assess medical students.	The study will investigate the current resident and non-faculty educational sources to determine the learning objectives, content, and design format for the online educational video project. As soon as the educational videos are beta tested at the end of the summer, the project videos will be posted online.
Jason Shoheit	Pediatrics	Defining strategies for single cell sequencing of cancer stem cells in neuroblastoma. Testing novel small molecule inhibitors in preclinical models of pediatric cancer.	Defining dose response and characterizing apoptosis across neuroblastoma cell lines. Determining tumor responses by in vivo imaging of neuroblastoma xenografts. Predicting pediatric cancer patient accrual across our catchment area.	Molecular assays for apoptosis, cell culture and drug treatment methodology. Monitoring of in vivo tumor growth with bioluminescent imaging, Establishing novel reporter cell lines for imaging and drug response monitoring.

Xiaoduo Fan	Psychiatry	<p>The UMass Psychotic Disorders Program has developed the Community Intervention Program (CIP) with the mission of creating a more mindful Worcester by providing various supports and informational opportunities for those invested in the mental wellness of our communities. The CIP is specifically committed to addressing the needs of those affected by a severe mental illness, who particularly rely on community-based wellness resources.</p>	<p>the CIP includes three public education and intervention modules:</p> <p>The Lifestyle as Medicine module is for individuals to establish healthy lifestyle changes via recovery and support-based discussions and activities with a focus on making healthy food choices and increasing physical activity.</p> <p>The Arts and Music module is for individuals to harness and express their creative abilities and talents while offering a platform for social interaction via art or music therapy groups, and Dual Diagnosis Theatre drama therapy.</p> <p>The Early Detection and Intervention module presents an opportunity for young individuals exhibiting early signs of psychosis to collaborate with mental health care providers to improve access to treatment options.</p>	<p>The student can choose to be involved in ongoing projects in any of the 3 CIP modules or develop his or her own project. In the later case, ideally the student has developed the study plan with IRB approval before the rotation starts.</p> <p>The study design can be cross-sectional, case-control, or clinical trial.</p>
Timothy Fitzgibbons	Medicine	<p>Women with stress cardiomyopathy are known to have increased levels of depression and anxiety. This study will ask the question "does MBSR improve self reported levels of stress/anxiety in patients with SCM"? Second, we will ask the question does MBSR reduce levels of circulating catecholamines and improve LV function faster than those who do not undergo this therapy?</p>	<p>Three questions, that could potentially be addressed:</p> <ol style="list-style-type: none"> <li>1) Does MSBR reduce circulating levels of catecholamines?</li> <li>2) Does MSBR improve LV function?</li> <li>3) Does MSBR reduce self reported levels of stress?</li> </ol>	<p>1) Clinical trial</p> <p>Plan</p> <p>Transdisciplinary training with clinical research nurses, physicians, and molecular biology at the bedside. Student will learn about clinical trial design and implementation, cardiology, and molecular biology. They will then implement the skills learned to answer one or more of the questions above.</p>

Rebecca Blanchard	UMMS-Baystate/PURCH	<p>This project involves contributing to data collection for the evaluation of the PURCH Health Equity Incubator. This includes; participating in the Health Equity Incubator (4 weeks), collecting formative survey and interview data from a group of interprofessional students also participating in the Incubator, creating and distributing a survey to faculty and key stakeholders about the Incubator, helping to analyze data, and then helping to write this evaluation into a manuscript for submission.</p>	How is the PURCH Health Equity Incubator meeting the expectations of its stakeholders?	Student will be working on a formative program evaluation, using surveys and interviews.
Tara Lagu	Institute for Healthcare Delivery and Population Science, Baystate Health	<p>I have 3 potential projects:</p> <ul style="list-style-type: none"> <li>-Identification of strategies to increase use of cardiac rehabilitation by patients with heart failure</li> <li>-Impact of Medicare Accountable Care Organizations on the treatment and outcomes of patients with heart failure</li> <li>-Identifying physical, structural, and attitudinal barriers for patients with disabilities (specifically, patients with mobility impairment) when accessing health care</li> </ul>	<ol style="list-style-type: none"> <li>1. What are the barriers are preventing patients with heart failure from attending cardiac rehabilitation? (could be completed)</li> <li>2. What are trends in Medicare Accountable Care Organization enrollment for patients with heart failure? (definitely could be completed)</li> <li>3. What is the impact on outcomes for patients with heart failure who are enrolled in Medicare Accountable Care Organizations? (could be completed)</li> <li>4. When a patient with disability and the physician of that patient are asked to (individually) describe the barriers and frustrations during a single clinic visit, how does that description vary between the patient and the physician? (could be completed)</li> </ol>	<p>options include:</p> <ul style="list-style-type: none"> <li>-Using Medicare Claims data to answer questions about treatment and outcomes for patients with heart failure (#2,3)</li> <li>-Using qualitative methods to interview patients/physicians or to analyze qualitative data about physician encounters (#1,4)</li> </ul> <p>We have a lot of options for projects, though, and I love to see what creative projects the students themselves come up with (we have had some great ones over the last couple of years! Lots of papers are being completed, a couple are published)</p>

Peter Lindenauer	Institute for Health Care Delivery and Population Science	Can Instagram be used to deliver informational and social support to users with poorly controlled asthma?	The student will be involved in either or both a survey to understand the acceptability of using Instagram to deliver an intervention to increase control of asthma or a pilot study using Instagram as a means of delivering informational and social support to users with poor controlled asthma.	The survey study is a cross-sectional study, using a convenient sample of Instagram users. The pilot study is a randomized controlled trial. Subjects assigned to the intervention group will be asked to use their Instagram account to post about their asthma and to respond to the post of others through comments. They will also receive asthma self-management support materials delivered by a coach through Instagram. Subjects in the intervention arm will “follow” #AsthmagramStudy, an Instagram hashtag that will be used by the research team and study participants. Subjects assigned to the control group will receive direct messages containing general information about asthma. At enrollment and completion of the study subjects will complete asthma- and health-related questionnaires. This study will assess the feasibility, acceptability, and fidelity of the protocol and study design.
Elizabeth Schoenfeld	Emergency Medicine	1 - Decision aid development for the initiation of buprenorphine in patients with Opioid use disorder in the ED; 2- harm reduction dissemination;	Can we screen patients for opioid use disorder and use the decision aid to facilitate uptake of buprenorphine from the ED? (early phase - feasibility)	Qualitative research and prospective cohort / clinical trial (feasibility)

Dr. Nancy Byatt	Psychiatry, Ob/Gyn, and Population and Quantitative Health Sciences	<p>One in five women suffers from a mental health condition when they are pregnant or postpartum, yet many go undiagnosed and untreated. UMass Medical School is a national leader in research to combat this gap in care. In 2014, our team created MCPAP for Moms (<a href="https://www.mcpapformoms.org/">https://www.mcpapformoms.org/</a>) to help front-line obstetric and other providers treat mental health conditions in women that are pregnant, postpartum, lactating, or considering having children. The success of this program has made it a national model for care and we are now consulting nationally and internationally to help other organizations develop similar programs.</p> <p>As this care model rapidly expands to other settings, it is important for us to understand barriers and facilitators to program success in different environments. This project will be using interview data from the leadership in developing programs to help inform our understanding.</p>	<p>What are the barriers and facilitators to successful implementation and utilization of Perinatal Psychiatry Access Programs and, in turn, how do programs address them?</p> <p>This is a qualitative study that will use content analysis to identify the main themes discussed in interviews with leadership from developing programs across the country. Themes will be distilled into useful information to current and future programs so that they are able to adjust their program implementation and procedures. The interviews will help us understand what the programs are doing, how they are doing it, and successes and failures they've had along the way. This information will be harnessed to further assist new and developing programs in their quest to help women with perinatal mental health conditions.</p>	<p>This is a qualitative study of key-informant interview data, obtained from the leadership of programs across the country. The data has been previously collected, so the student will primarily participate in transcription and/or quality checking of de-identified interviews, learn and complete basic qualitative analyses, and lead manuscript/presentation development. The student will work directly with members of our team. Since the data is pre-collected, he/she will start by familiarizing themselves with the study (e.g., reading protocols and supporting literature) and begin with interview transcription/checking. We anticipate that the data analysis and preliminary drafting of the manuscript can be completed over the summer. The student may continue with us throughout the rest of their medical education to complete the manuscript and assist with other projects if he/she wishes.</p>
Mayuko Ito Fukunaga	Medicine	Co-production and evaluation of educational text messages about lung cancer screening to improve patients' awareness	Acceptability of a paper-based educational material vs. educational text messages about lung cancer screening among lung cancer screening eligible patients	implementation science study
David McManus / Nate Hafer	Medicine / Center for Clinical and Translational Science	What are the best ways to accelerate product development of point of care technologies for heart, lung, blood, and sleep diseases?	<p>The pace of technological change in healthcare is rapid and potentially transformative. Researchers at UMass Medical School focused on heart, lung, blood, and sleep disorders (CAPCaT) have created surveys to help inform how we support promising new technologies. We want to understand where new devices are most needed. Opportunities are available to help analyze data from these surveys to understand healthcare provider and patient attitudes towards these emerging technologies.</p>	<p>survey data collected from healthcare providers and patients</p> <p>product development related to 6 technologies being tested to better diagnose, treat, and manage heart, lung, blood, and sleep diseases</p>

Giorgio Giatsidis	Plastic Surgery	<p>Our team has a series of projects focused on undergraduate and graduate surgical education. Areas of interest include:</p> <ul style="list-style-type: none"> <li>- surgical education in US medical schools</li> <li>- development of a comprehensive surgical skill course for medical students</li> <li>- use of simulation-based education in residency surgical curricula</li> <li>- development of a simulation-based focused curriculum for plastic surgery residency</li> </ul>	<p>These projects are designed to be completed and lead to scholarly publication within the limited time of this summer experience. Overall, the scientific questions focus on the status and impact of surgical education and ancillary teaching techniques during undergraduate and graduate medical training.</p>	<p>Since the goal is to have the student lead the project and have the project result in a scholarly publication within a limited time (~4 weeks), our focus is on prospective survey-based educational studies which offer higher time flexibility, a faster pace, and a lower barrier to entry (pre-requisite knowledge or skills).</p>
Hugh Silk, MD		<p>A few years ago, oral health was expanded within the UMMS curriculum to include some oral health within anatomy, physiology, and infectious disease lectures and lessons. There is an oral health interstitial day and oral health is included in the PD 1 course. Last summer (2019), a UMMS student helped expand oral health content and lessons into many more courses including Pop, PD1 updates, ECPS, Global and Rural Health Pathways, and several more. However, UMMS continues to have minimal evaluation of these oral health curricular components.</p>	<p>During the first three weeks of the eight-week project, the student will review the inventory of oral health coursework at UMMS and cataloging what evaluation is being conducted. This will include an email, phone call or in-person meeting with course leaders and/or a review of course content and evaluation tools (questions, observations, etc.). The student will also do a review of what other programs do in the U.S. who have model oral health curricula (Dr. Silk has examples from around the country that can be used) through emails and phone calls. The next five weeks will include offering course leaders a “tweak” of their evaluation, where appropriate. As the plan evolves, the student will help create a “map” of the oral health curricular evaluation at UMMS so that it can be presented as a best practice nationally. The student will also meet with iCELS personnel to start creating an OSCE/SP experience for testing oral health competencies and creatively planning where this could occur in the curriculum.</p>	<p>Dr. Silk and some of the research faculty/staff within the Department of Family Medicine and Community Health are also working on a 5-year HRSA training grant to integrate oral health into primary care among residency and fellowship training sites (e.g., Family Medicine, Pediatrics, Geriatrics, etc.), mid-level training programs (e.g., nurse practitioner, PA, and midwifery), as well as dental schools, medical schools, and DO schools. The student will have the opportunity to work on various components of this training grant including working with the Editor of Smiles for Life</p>

Melissa Fischer	OUME	<p>Students can participate in projects related to curriculum development in areas of interest at iCELS and with the OUME including</p> <ul style="list-style-type: none"><li>- implicit bias, diversity and inclusion</li><li>- virtual and augmented reality</li><li>- mindfulness</li><li>- development and implementation of independent learning modules and small group teaching experiences</li></ul>	<p>Given the variety of topics, we will work with students to identify a component of the work that is of interest to them and fits the timeframe available.</p>	<p>Framework and implementation plans vary depending on the project selected.</p>
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