

Project Name	Faculty name	Department	Brief description of the general research problem or project	What specific question will the student addressing during their rotation	What is the type of study or curriculum implementation plan?
Optimization of CAR Tregs for AAV gene therapy	Keeler, Allison	Gene Therapy Center, Pediatrics	Modulating immune responses to AAV gene therapy are necessary for further clinical development of AAV based therapies	What are the optimal constructs, and conditions for producing the most tolerizing CAR T-regulatory cells	Translational research involving mouse models
Environmental Sustainability in Medicine	McLean Mandell, Riley	Dermatology	What measures can departments take to increase their environmental awareness and sustainability? What evidence is there for the safety of reusable, recycle material? What resources	What steps can X department (whichever field of interest they have) make towards environmental sustainability?	The students enrolled would complete a curriculum of lectures and journal reviews on environmental sustainability, and spend several weeks observing medicine practiced in
Skeletal muscle regeneration/preservation after trauma	Giatsidis, Giorgio	Plastic Surgery/Surgery	Learning translational research method & techniques in animal models of regenerative medicine, learn data analysis and presentation. learn abstract/manuscript writing and poster development.	Can we induce skeletal muscle regeneration/preservation using mechanotherapies and controlled cooling systems?	Translational research in rat/porcine models

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Compartment syndrome monitoring with microsensors	Giatsidis, Giorgio	Plastic Surgery/Surgery	Learn approach and techniques in translational medicine, particularly applied to diagnostics, medical device development, and surgical care	Can we use non invasive microsensors to detect/monitor compartment syndrom	Translational research in porcine models
Developing Study Resources	Woolf, Christine	Center for Academic Achievement	Development of resources to teach first year students how to make and study from study guides, tables, and other resources.	The student will explain how an incoming student can make an effective study resource for a specific SOM1 topic. The student will also teach incoming students how to study from the resource made.	These resources will be uploaded into the Student Support Year 1 Class next year and future years.
Incorporating diversity into the new curriculum	Carter, Yasmin	Translational Anatomy	How can we help both faculty and students have a better understanding of diverse populations	Participants will be able to choose a focus area of diversity i.e. racism, marginalized genders, Native American and Indigenous peoples to review and build curriculum	This is a curriculum needs analysis and then building and review of educational materials for both faculty and students

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Evaluation of PURCH Track	Blanchard, Rebecca	UMass Chan - Baystate (PURCH Track)	Reviewing literature on longitudinal educational experiences, gathering data from various sources about the curriculum, and organizing and analyzing data to evaluate the program for various stakeholders.	How is PURCH meeting its intended goals? What are other outcomes of the program, if any?	Curriculum evaluation

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Screening and Intervention for SDOH at an FQHC	Gnazzo, Melanie	Family Medicine and Community Health	Identifying and providing interventions for social determinants of health can have profound impact on patient health outcomes. The Family Health Center of Worcester an urban FQHC has implemented a successful universal screening program for SDOH. It is also the site of the Farm to Health Center Initiative, a free produce distribution started by UMass Medical students that runs 10 weeks each summer. However, optimization of these programs and impact of these programs has not been fully evaluated.	Summer students will work with the faculty advisor to identify an aspect of screening or intervention process that is mutually interesting to the FHCW and the student and that highlights the student's expertise or learning goals. Based on the student interest, topics may include: optimizing screening processes in the primary care setting; evaluating and optimizing social services referrals for those who identify with SDOH needs; evaluating specific interventions such as the Farm to Health produce distribution; patient perceptions on barriers to produce consumption and potential interventions. Alternatively, students may opt to focus on evaluation of a curriculum on Food Insecurity developed by	Investigation methods will vary, based on the focus topic that is mutually agreed on. literature review retrospective chart review community site visits and structured field study structured written and oral interviews with patients/community members/medical team members. participation in local, regional and national discussions on food insecurity and other SDOH

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Access to care for patients with disabilities in the Emergency Department	Modi, Payal	Emergency medicine	Improving access and education for patients with disabilities in the ED.	Creation of an educational curriculum for faculty, staff and trainees. Also, implementation of quick-fixes to improve access to care.	Curriculum implementation
Connecting patients to food: a pilot in the oncology clinic	Furbacher, Jacqueline	Emergency medicine	Pilot study of a program connecting patients to resources for fresh produce. Specifically, evaluating feasibility and implantation, early analysis if impacts food insecurity.	ng	Pilot study for program effectiveness with randomized component to receive nutrition counseling or not in addition to money for fresh produce.
The role of I κ B ζ in plasma cell differentiation	Nundel, Kerstin	Medicine	How does the modification of the NF κ B pathway influence the development of autoreactive B cells	How does the innate immune receptor TLR9 activate the expression of I κ B ζ in B cells	Mouse model system

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Bridging the Mental Health Gap: Creating Learning Tools for the Public	Anya, Bernstein and Kara, Lindquist	Psychiatry	<p>What is the best medium to provide educational materials on mental health for the general public? There is an increasing incidence of psychiatric disorders in the population in the last decade while there is a shortage of mental health providers. Certain populations have been especially affected, as evidenced by the recent declaration of a youth mental health crisis by the U.S. Surgeon General in December 2021. The goal of this project is to increase mental health outreach to the community including the recognition of mental health issues and potential interventions. The outreach can be done via different media including videos, social media platforms, podcasts, presentations, websites, brochures, etc.</p>	<p>In stage 1, the student will research different media available for presenting mental health information to the community. They will collaborate with the UMASS Chan Medical School Office of Communication. The student can perform a literature review (and potentially a cross-sectional survey) to help the team determine which media platform will be used. In stage 2, the student will learn how to be an effective communicator to the public by preparing specific materials for general population. The team, including the student, will develop and publish the materials. Potentially, stage 3 can be conducted: the team can analyze how the materials are received by the public.</p>	<p>literature review, potential cross-sectional survey, feedback analysis after implementing the learning materials</p>

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FORCE-TJR- Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement	Zheng, Hua	Orthopedics and Physical Rehabilitation	We would like to better understand the clinical and surgical factors, specifically varying total hip replacement (THR) and total knee replacement (TKR) approaches and peri-operative care that may impact patients' functional outcomes.	The student will assist in this national research study. Daily work will include: understanding the emerging importance of collecting PROs including data entry of patient surveys; training in appropriate data collection and abstraction of operative notes from FORCE-TJR registry participants due to adverse events. Students will also be exposed patient retention calling.	Longitudinal cohort study.

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Embracing Life in the Older Years: A Qualitative Study of Elders' Experiences with Aging	Potts, Stacy	Family Medicine and Community Health	What factors contribute to joy in the elder years? Older patients are often unsure what to expect in the late years of their life. This project seeks to explore the experiences of older adults to evaluate themes in terms of physical, mental, and emotional changes and successful coping strategies. Our study will focus on elder adults' experiences transitioning and living through late adulthood (80+ years old).	The student(s) will interview elders to explore what physical, cognitive, and emotional experiences are crucial to understanding late adulthood in the United States.	Qualitative study consisting of individual interviews

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Integrating the EHR-Classroom throughout the curriculum -- diversity, informatics and problem-solving	Fischer, Melissa	OUME	Students will review the EHR-Classroom resources and identify an area they want to enhance which could include working with faculty to build cases for their course, developing student support modules, building sessions to teach informatics and EHR skills, incorporating the EHR-Classroom into a simulation experience, etc.	This is largely student-dependent and can be focused on their interests as long as the project advances the integration of the EHR-classroom in the curriculum.	Students will write objectives, complete the work and outline a plan for implementation.

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Assessment of Massachusetts' Population Health Approach to Oral Health	Silk, Hugh	Family Medicine and Community Health	Oral health (OH) issues are the most prevalent diseases locally, in the US and globally, and disproportionately affect the underserved and certain racial and ethnic populations. Solutions to this complex health issue require broad spectrum solutions. Project: Massachusetts has taken a population health approach to addressing the oral health of its citizenry. Different organizations from the Department of Public Health to the legislature, from state champions to health schools have contributed to improving access and outcomes. This project will be conducting a systemic review of all of the various efforts into an article for the American Journal of Public Health or equivalent	What are the factors that have contributed to Massachusetts having a robust oral health strategy that has improved the oral outcomes of its citizens politically, clinically, educationally, and from a public health perspective?	Interviews, topic review, literature search

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Literature Review of Oral Health Coverage in Primary Care Peer-Reviewed Journals	Silk, Hugh	Family Medicine and Community Health	Oral health (OH) issues are the most prevalent diseases locally, in the US and globally, and disproportionately affect the underserved and certain racial and ethnic populations. Project: Oral health continues to be neglected in primary care journals likely because oral health is not taught well in medical training yet the extent to which the paucity of oral health promotion exists is not well understood. Many journals use oral disease for their image sections; some others have done review articles. There seems to be a lack of research published. This project will entail working with our medical school librarians to do a thorough search of key clinical and academic articles, following by the	What percentage of article published in primary care journals cover oral health topics and how is this important topic addressed through publication (i.e., research studies, medical education and curriculum development efforts, oral health assessment tools and resources for teaching, etc.)????	Literature search

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Anatomy Curriculum Development	Wink, Alexandra	Radiology	Creation of supplementary learning materials for anatomy courses	Address gaps in anatomy learning resources	To be utilized in VISTA for the 2022-23 academic year.
Robotic Thoracic Surgery	Maxfield, Mark	Thoracic Surgery	Robotic video editing to assist general surgery trainees learn thoracic surgery	Can videos be created to assist general surgery resident learn the steps of thoracic operations	Creation of videos; resident questionnaire.

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Improving home based acute care in central Massachusetts.	Bajracharya, Adarsha	Internal Medicine	<p>UMMHC launched its hospital at home (HAH) program in August 2021 to care for sick patients at home who would have been otherwise admitted to the hospital with the goal of bringing acute care at home, improve overall patient experience, and address the capacity issue faced by the healthcare system without compromising the quality of care. UMMHC HAH program has cared for more than 100 patients since its inception. Despite many successes since its launch, there are operational inefficiencies in the clinical workflow affecting patient and care team's experience.</p>	<p>The student will participate in identifying opportunities to improve current workflow that can lead to operational efficiency, improved quality of care, and better experience for patients and care team in this emerging hospital at home program. During the 8 week rotation, the student should be able to participate in activities as outlined below. The student will be working under the mentorship and guidance of Dr Bajracharya and HAH leadership.</p>	<p>This will be a longitudinal quality improvement project following A3 process consisting of gemba walks with front-line nurses, care navigators, and providers, performing root cause analysis, developing potential countermeasures, and implementing at least one counter measure for identified root causes that is endorsed by the HAH leadership. Participating student will present the work to the HAH leadership team at the end of the rotation. Presentation of the work at regional/ national conference in the form of poster/ abstract/ oral presentation will be encouraged.</p>

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Preparing second year students for the Population and Community Health Clerkship: Development of an ILM	Cashman, Suzanne	Family Medicine and Community Health	Creation of an independent learning module for the Population and Community Health Clerkship	It can be completed in 4 weeks. Student will develop the module to ensure that all second year medical and nursing students are sufficiently prepared for this two-week immersion experinene.	Implementation plan: all second year medical and nursing students will complete the ILM as preparatory to engaging in any of the 30 small group clerkships.

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<p>Anya Bernstein, MD. Christopher Catalfamo, PsyD. Using a Multimodal Approach to Mental Health Care Delivery in Outpatient Setting</p>	<p>Anya, Bernstein and Kara, Lindquist</p>	<p>Psychiatry</p>	<p>Will a weekly, time-limited lifestyle and basic psychoeducation group plus individual medication check -ins significantly improve mental health symptoms in an outpatient psychiatric setting? How can we measure the effectiveness of this integrated model? Traditional approaches to management of mental health conditions involves individual visits with medication providers and when resources are available, predominantly individual therapy. New research supports that in addition, lifestyle changes including better nutrition, exercise, mindfulness and meditation, lead to improvement in symptoms of depression and other conditions. The ideal mental health care would</p>	<p>Stage 1. Complete a literature review to determine which modalities of mental health care are the most effective and accessible. Stage 2. Design a curriculum for an evidence-based model including the appropriate modalities. Stage 3. Recruit participants from the outpatient psychiatric clinic for a repeated measures design research trial of the model being implemented. Stage 4. Complete pre-/post-treatment comparisons on several outcome measures of symptoms and wellness. Stage 1 in more detail: Which modalities of mental health care delivery a) produce better results; b) are preferable for patients; c) are more accessible? Does lifestyle and medications multimodal care provide superior results compared to care as usual? Students will</p>	<p>Literature review as above, part of longitudinal cohort study, possibly also cross-sectional case-control study. Students can join the project at any of the above stages. They can help with designing evidence-based model of integrated psychiatric care, designing curriculum for any of the components (e.g. nutrition, sleep, mindfulness, etc.) and exploring the need for any digital apps for the project. In addition, the student can help with obtaining pre or post-treatment measures, can participate in groups and medications check-ins, and can analyze the collected data.</p>

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Improving Radiologists' Error by using the non-conscious brain and AI	DiGirolamo, Gregory	Radiology	How can we improve radiological error using their own brains?	Do non-conscious brain processes detect abnormalities even when conscious processing does not?	Human experimental using high-speed eye-tracking
Implementation and Evaluation of Innovations in Pediatric Asthma: A School-Linked Text Message Intervention for Children with Poorly Controlled Asthma	Trivedi, Michelle	Pediatrics	Grave inequities exist in pediatric asthma outcomes with underrepresented minorities experiencing the highest morbidity and mortality from asthma. Moreover, these same populations experience the lowest asthma medication adherence rates. We have developed and beta-tested a school-linked text medication adherence intervention to aid children and parents with taking their daily asthma medications and are now ready to deploy this intervention in a pragmatic clinical trial as well as understand perspectives on clinical implementation through interviews with school nurses, children and families, medical providers and other key stakeholders like insurers.	Can we pilot test a school-linked text message intervention against a control group in a clinical trial? This project is perfectly timed for this summer rotation as we plan for this to be a 6-8 week trial over the summer.	Clinical Trial and Qualitative Interviews

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Validation of the Navigator Needs Assessment, a Tool for Outer Cape Health Services Navigator Program	Lowe, Andy	Department of Family	Determining validity and reliability of a novel social determinants of health needs assessment tool	Does the implementation of a novel community needs assessment tool accurately and consistently identify community health needs for the Outer Cape population?	Qualitative research and validation study. Overview of Implementation Plan: Since 2019, Outer Cape Health Services has been partnering with UMMS 4th year Medical and Graduate School of Nursing students to develop a social determinants of health needs assessment for the Navigator Community Health Program. The next phase of the of the study is to evaluate the reliability and validity of the NNA tool. For this RCE project, the learner would conduct cognitive interviews with 7 to 10 community health workers at OCHS. With support of the UMMS graduates and OCHS, the student will learn the qualitative research process and ultimately complete the following: 1) Develop a semi-structured cognitive interview guide 2) conduct 30-to-45-minute interviews with OCHS CHWs, and use Atlas.ti software to analyze the interview data. The learner will work with OCHS and UMMS graduates to draw conclusions from the data, present the findings, and suggest changes to the NNA tool. The interviews and analyses will take a total of 3 weeks to complete. Drawing conclusions and developing findings will take one week to complete. This research process and the conclusions will be presented at the end-of-summer RCE poster session.

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Patient reported outcomes after incisional hernia repair	Perugini, Richard	Surgery	Hernia repair is the most commonly performed general surgical operation. There are various techniques to accomplish repair of incisional hernia. Surgeons may use different types of mesh products, may place the mesh in different locations. They might elect to perform releases of lateral abdominal muscles to allow for midline fascial closure. Measures of outcomes had been limited to perioperative complication, and to recurrence of the hernia. However, an important outcome measure is the patient's experience of their abdominal wall function following hernia repair. There exist several instruments to measure patient reported outcomes following hernia repair.	Do the various techniques utilized for incisional hernia repair have implications for patient reported outcomes.	The goal of this project is to construct a database of hernia repairs from 10-1-17 to the present, including demographic factors, socioeconomic factors and perioperative factors (e.g. technique, complications). We will then contact patients at least 3 months following hernia repair to administer a validated patient reported outcomes instrument. Our goal is to analyze factors that are associated with outcomes as assessed at long term follow up.