

Emergency Medicine Research Associates Program Academic Curriculum

Vision

The most prestigious undergraduate research associates program in the methodology and skills of clinical and epidemiological research in the United States.

Mission

The undergraduate research associates will become experienced in studying, interpreting, designing and conducting clinical research. The program mission will be accomplished through a series of lectures presented by faculty speakers in addition to independent and team-based assignments.

Curriculum Goals

1. Educate and train undergraduate research associates to organize, understand, and present clinical research.
2. Introduce research associates to allied healthcare professions and integrate career development.

Curriculum Objectives

Upon completion of academic program, the research associate will be able to:

1. Generate a hypothesis and study design
2. Conduct a literature review for study design and manuscript preparation
3. Understand the basics of clinical epidemiology and biostatistics
4. Understand how the Institutional Review Board (IRB) operates and how to submit new clinical studies
5. Compose a research grant proposal
6. Effectively summarize and present a scientific article
7. Successfully perform the methodology required for clinical research
8. Produce a full scientific manuscript in publication format

Curriculum Schedule

Session/ Quarter	Goal
Summer	Design clinical research study that meets criteria of being feasible, interesting, novel, ethical, and relevant
Fall	Submit a research grant proposal to the UC Irvine Undergraduate Research Opportunities Program (UROP) to receive funding for their respective studies
Winter	Publish their study through a successful manuscript submission to the UC Irvine School of Biological Sciences Excellence in Research Program
Spring	Present research at the UC Irvine Undergraduate Research Opportunities Program Symposium, UC Irvine Excellence in Research Conference and/or regional and national scientific meetings.

Faculty Speaker Series

Lecturer	Lecture Topic	Outcome/Goal
Bharath Chakravarthy, MD, MPH Director of Emergency Medicine Residency Program Associate Professor of Clinical Emergency Medicine UC Irvine School of Medicine	Designing Clinical Research	Research associates will be able to design a clinical research study that meets criteria of being feasible, interesting, novel, ethical, and relevant
Linda Murphy UC Irvine Librarian	Strategies for Literature Research	Research associates will be able to navigate scientific databases to conduct literature reviews and gather information on previous scientific studies
Eric McCoy, MD, MPH Director of Simulation Education Assistant Clinical Professor of Emergency Medicine UC Irvine School of Medicine	Introduction to Clinical Epidemiology	Research associates will be able to understand and interpret clinical research papers and their relevance to the medical field and broader society
Jeffrey Suchard, MD Director of Toxicology Professor of Clinical Emergency Medicine UC Irvine School of Medicine	Institutional Review Board	Research associates will be able to understand the IRB Protocol Narrative review and approval process
Said Shokair Director of UC Irvine Undergraduate Research Associates Program	Undergraduate Research Opportunities Program (UROP)	Research associates will learn about the various opportunities UROP offers for students to apply for grant funding and present their research findings
J. Christian Fox, MD Associate Dean of Student Affairs Professor of Clinical Emergency Medicine UC Irvine School of Medicine	Specialty Career Perspectives	Research associates will learn about the residency application process, the various medical specialties, and tools available to assist with successful career path decisions via AAMC
Ellena Peterson, PhD Associate Dean of Admissions and Outreach Professor of Pathology	Medical School Admissions Process	Research associates will learn about the steps required to successfully apply to medical school and

UC Irvine School of Medicine		ultimately pursue training as a medical professional
Craig Anderson, PhD, MPH Research Director of the UC Irvine Center for Trauma and Injury Prevention Research	Statistics in Research	Part I: Research associates will learn about basic statistical methods and values that are essential to understanding results of clinical research studies Part II: Research associates will learn the importance of proper data presentation by graphs and tables in order to effectively communicate research study results
Susan Schafer Coordinator of UC Irvine School of Biological Sciences Excellence in Research Program	UC Irvine School of Biological Sciences Excellence in Research Presentation	Research associates will learn the necessary steps and requirements for participation in the Excellence in Research program, involving successful manuscript writing and oral/poster presentation
Shadi Lahham, MD Resident of Emergency Medicine University of Nevada, Las Vegas Alumni of UC Irvine EMRAP	Medical School Admissions Process: Through the Eyes of a Medical School Graduate	Research associates will gain a thorough understanding of the components of a successful medical school application from a medical school student interviewer
Jeffrey Suchard, MD Director of Toxicology Professor of Clinical Emergency Medicine UC Irvine School of Medicine	How to Give an Effective Oral Presentation using Microsoft PowerPoint	Research associates will learn how to give an effective PowerPoint presentation at scientific research meeting and symposiums
Mark Langdorf, MD, MHPE Department Chair of Emergency Medicine Professor of Clinical Emergency Medicine UC Irvine School of Medicine	How to Give an Effective Poster Presentation	Research associates will learn how to design and deliver an effective poster presentation of their research at scientific research meetings and symposiums
Megan Boysen Osborn, MD Associate Director of	How to Compose an Effective Curriculum Vitae	Research associates will learn how to develop and

Emergency Medicine Residency Program Assistant Professor of Clinical Emergency Medicine UC Irvine School of Medicine	(CV)	organize a CV for use among professional academia.
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Academic Assignments

Assignment	Task	Goal
Literature Review	<p>Research 5 clinical studies that are relevant to the topic assigned to each group and summarize the following for each study:</p> <ol style="list-style-type: none"> 1. Goal/Hypothesis 2. Study Population 3. Methods 4. Results 5. Relevance 	<p>Upon completion, research associates will be able to: understand how studies are designed, how to navigate scientific databases, and be able to interpret the importance of specific studies.</p>
Grant Proposal Writing	<p>Liaisons for their particular study are required to develop a Grant Proposal that will be submitted to the UCI Undergraduate Research Opportunity Program (UROP)</p>	<p>Upon completion, research associates will be have the opportunity to receive funding for their study as well as develop grant writing skills</p>
Manuscript Writing	<p>Excellence in Research Paper:</p> <ol style="list-style-type: none"> 1. Abstract 2. Introduction 3. Material and Methods 4. Results 5. Discussion 	<p>Upon completion, research associates will have completed a draft of their Excellence in Research manuscript. They will then receive feedback and submit their paper to the online journal.</p>
Clinical Research Study Design	<p>Review Academic program lectures before researching and designing a novel clinical research question and presenting to peers</p>	<p>Upon completion, research associates will be able to design a clinical research study that meets criteria of being feasible, interesting, novel, ethical, and relevant</p>

Program Outcomes and Student Accomplishments

UC Irvine Undergraduate Research Opportunities Program (UROP) Grant Awards and Symposium Presentations

The Undergraduate Research Opportunities Program (UROP) encourages and facilitates research by undergraduates from all schools and academic disciplines at UCI. UROP offers assistance to students and faculty through all phases of the research process, whether it is with proposal writing, developing research plans through project management skills, awarding grants to fund research projects, scholarly journal writing through The UCI Undergraduate Research Journal, or presenting results of the research or creative project through the UCI Undergraduate Research Symposium. This experience provides students with the necessary skills to succeed in their future careers.

Student Participants	Poster/Presentation Title	Grant Award
Nadia Zuabi, Nooreen Khan, Chelsey Bithell, and Armaan Rowther	Prevalence and Clinical Import of Thoracic Injuries Identified by Chest CT but not Chest Radiograph in Blunt Trauma Patients	\$900
Vincent Lam	Bedside Ultrasound vs. Chest X-Ray in the Evaluation of Placement of Central Venous Catheters	\$500
Helena and Hinal	Randomized Assessment of Alcohol Consumptions with Computerized Screening and Brief Intervention for Adult and Adolescent Patients in the Emergency Department	\$400
Fareed Ahmed	Validation of the NEXUS-II Decision Tool in Blunt Head Injury Patients Presenting to a Level 1 Trauma Center	\$300
Aspen Alotis, Chris Gilani, and Allen Yang	Emergency Department versus Radiology Department pelvic Ultrasound and Effect on Patient Length of Stay: A Randomized Control Trial	\$300
Sohni Singh and Chris Gilani	Utility of Ultrasound Guided Lumbar Puncture in Successfully Reducing Level of Traumatic Taps	\$300
Sohni Singh and Trang Tran	Attending Level Abdominal	\$300

	Physical Exam vs. Medical Student Abdominal Ultrasound Exam	
Anthony Khong	Are Ultrasonographically Obtained Common Bile Duct Measurements in Emergency Department Patients with Symptomatic Gallstones Useful?	\$300
Kevin Pham	The Natural History of Human Stingray Injuries	\$250
Samantha Wong	Evaluation of Shoulder Injury in the Emergency Department: Utility of Bedside Ultrasound in the Diagnosis of Acute Shoulder Dislocation	Honorary Recognition
Anum Iqbal	Does a Consensus Exist between Emergency Physicians Regarding Physical Characteristics that Constitute a Seatbelt Sign?	Honorary Recognition
Patrick Penalosa	Are Immobilization Backboards and C-Collars Needed for Patients who are Ambulatory at the Scene of a Motor Vehicle Accident? The Occurrence of Spinal Injury	N/A
Alex Trinh	Physician and Patient Vies on Acceptable Risk for CT in Trauma	N/A

Excellence in Research

The UCI School of Biological Science offers students enrolled in Undergraduate Research the opportunity to present their scientific data to the academic community at the Undergraduate Research Symposium by participating in the Excellence in Research Program. Those students who successfully complete the program are rewarded with Excellence in Research in Biological Sciences and have their research papers published in the school journal.

Title of Published Papers	Author
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Does a consensus exist between emergency physicians regarding physical characteristics that constitute a seatbelt sign?	Anum Iqbal
Prevalence and clinical import of thoracic injuries identified by computed tomography but not chest radiography in blunt trauma patients	Chelsey Bithell
Validation of the Nexus-II decision tool in blunt head injury patients presenting to a level I trauma center	Fareed Ahmed
The natural history of human stingray injuries	Kevin Pham
Utility of ultrasound guided lumbar puncture in successfully reducing level of traumatic taps	Sohni Signh
Three window ultrasound for confirmation of endotracheal tube placement	Trang Tran
California prescription drug monitoring system (CURES) and its effect on physician prescribing behavior among patients presenting with chronic pain.	Vincent Chang

2013 Pathways to Cures: Clinical Translational Research Day at UCI

UC Irvine Institute for Clinical and Translational Sciences (ICTS) is committed to transforming ideas into medical reality and to accelerate the discovery of new treatments across the spectrum of human disease/injury. UC Irvine Emergency Medicine research associates presented their research findings at the 2013 annual symposium of translational clinical science.

Poster Title	Authors
Randomized Assessment of Alcohol Consumption with Computerized Alcohol Screening and Brief Intervention for Adult Emergency Patients	Helena Do and Hinal Patel
Are Ultrasonographically obtained common bile duct measurements in Emergency Department Patients with Symptomatic Gallstones Useful?	Anthony Khong
Emergency Department vs. Radiology Department Pelvic Ultrasound and Effect on Patient Length of Stay: A Randomized	Aspen Alotis and Chris Gilani

Control Trial	
Prevalence and Clinical Impacts of Thoracic Injury Identified by Chest CT But Not Chest Radiograph in Blunt Trauma Patients	Nadia Zuabi, Nooreen Khan, Chelsey Bithell, and Armaan Rowther
Success of Lumbar Puncture After Using Ultrasound to Identify Landmarks	Chris Gilani and Sohni Singh
Three Window Bedside Ultrasound vs. Chest X-ray for Confirmation of Endotracheal Tube Placement	Trang Tran
Yield and Clinical Predictors of Thoracic Spine Injury from Chest Computed Tomography for Blunt Trauma	Patrick Penalosa