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The views expressed in this brochure are solely those of the Medical Student Research Program and its staff members. They do not represent the opinions of the National Institutes of Health.

The University of Arizona College of Medicine Medical Student Research Program



Sponsored in part by grants from the National Institutes of Health and Dean's Fund



As the 21st century begins, medical students will enter and pursue a career in medicine while rapid changes are ongoing in the health

care scene, and political and social events are shaping an unpredictable future.

Whereas the role of managed care, single payer, and various other health care delivery systems and the relative influence of primary care practitioners and specialists in these systems and their impact on patients remain unresolved, one thing is for sure: future advances in medicine and improvement in patient care will depend on research advances in molecular and clinical medicine that take place today and the ability of the medical profession to assimilate these ideas and technologies and distribute them equitably to all patients. Thus, the more students participate firsthand in the quest for new ideas, both inside and outside the classroom, the greater will be their breadth and

“Discovery consists in seeing what everyone else has seen but understanding it for the first time...”

– Albert Szent-Gyorgi

depth of understanding and the better their position to participate in and influence directly the future course of medicine and to help sick patients no matter which branch of medicine or balance of research-teaching-practice they choose for their career.

CURRENT OPPORTUNITIES

(previous research experience generally not necessary)

- NIH summer/vacation fellowships: short-term, full-time, renewable (minimum 8 weeks, maximum 12 weeks). Stipend rate: ~\$1600/month to work in basic/clinical research settings with faculty at the UA or other medical educational/ research institutions worldwide.
- Lillian Bilyu and John J. Banchi Fellowship provides an award of \$20,000 + \$5,000 laboratory supplies annually for two fellows to work full-time with a Sarver Heart Center investigator.
- MD/PhD and other combined degree formal and informal programs
- Research Distinction Track for academic credit
- Curriculum on Medical Ignorance (CMI), including the Summer Institute on Medical Ignorance, with seminars, lectures, and clinical exercises that explore the unknown.
- Student research presentations and publications
- Student preparation and travel to regional, national and international biomedical research meetings.
- Regional and national student research networking through the Western and American Federation for Medical Research (WFMR and AFMR) and other medical student organizations.
- Annual College of Medicine Student Research Forum
- Faculty and advanced student mentors to provide in-depth research experiences, career and specialty advising and contacts, and other support.
- Research Prizes
 - Arizona Health Sciences Center Medical Student Research Forum prizes
 - Arizona Chapter of the American College of Cardiology Research Awards
 - Honors and Awards Committee Excellence in Research Award
 - Leonard Peltier Award for Outstanding Orthopaedic Research
 - Maria Mandell Grant (Arizona Emergency Medicine Research Center)
 - Van Winkle Award for Excellence in Surgical Research and Supply Grants
 - John F. Myers II Prize for Outstanding Research and Creativity
 - Yuma Friends of Arizona Health Sciences Center Young Investigator Awards
 - AFMR – Student Membership and Trainee Investigator Awards
 - WFMR – Dionesia P. Bertakis, E.E. Osgood, and Klea D. Bertakis Award for excellence in student research
 - Alpha Omega Alpha Research Award
 - Other medical specialty organization student research stipends-grants

...and the Joy of Discovery

MSRP

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Advances in medicine are taking place at a staggering rate, and what was considered basic science only yesterday is now part of everyday clinical practice.

To enrich medical student education beyond classroom lectures and ward and clinic clerkships, and to foster a

closer relationship with faculty mentors, the College of Medicine sponsors a long-standing Medical Student Research Program (MSRP) and an innovative Curriculum on Medical Ignorance (CMI). Student research fellows gain familiarity with biology horizons in both basic and clinical science, acquire a broad grasp of research skills, learn to communicate ideas better,

refine clinical problem identification and solving, meet distinguished visiting physicians and scientists, and work closely with faculty and other students at various levels in diverse laboratory and patient care settings both at The University of Arizona and other institutions throughout the world. Since 1981, approximately 500 medical students have been awarded either short-term fellowships during vacation periods or extended



full-time research experiences for one or more years including, for some, acquiring joint MD/PhD or other combined degrees. Many MSRP students, who have also presented and published their work and received prestigious prizes and awards, now enjoy productive

careers in academic medicine or leadership positions in clinical practice. The vast majority indicate that the research experience was one of the most enjoyable and productive activities

during their medical training and one which often influenced the ultimate choice of career or specialty. We are currently expanding opportunities for all students to participate in MSRP and receive greater recognition for their research efforts.



“It is nothing short of a miracle that modern methods of teaching have not yet entirely strangled that sacred spirit of curiosity and inquiry, for this delicate plant needs freedom no less than stimulation.”

– Albert Einstein

“Keep them at it, I say, keep them working, bring in more of them, crowd them together in the deepest water, way beyond their depth. Goad them into swimming into each other, sputtering new bits of information each time they touch, losing themselves in a high surf of metaphor but each time regaining their feet for a new try. Sooner or later, something will come of it, something like knowledge, new to them, new and surprising to the rest of us.”

– Lewis Thomas, MD
physician, philosopher and author

The Curriculum On Medical Ignorance

Ignorance Map



CURRICULUM GOALS

- Gain understanding of the shifting domains of ignorance, uncertainty, and the unknown: philosophical and psychological foundations and approaches to learning, questioning, and creating “knowledge”; history and development of selected ideas and methods in basic and clinical medical science; mastery by in-depth multi-dimensional exploration of selected timely medical topics.

- Improve skills to recognize and deal productively with ignorance, uncertainty, and the unknown: questioning critically and creatively focusing on raising, listening to, analyzing, prioritizing, and answering questions from different points of view; communicating clearly in different media with various audiences; collaborating effectively with different people and other resources.



- Reinforce positive attitudes and values of curiosity, optimism, humility, self-confidence, and skepticism.

- Summer Institute on Medical Ignorance
- Full-time Basic and Clinical Research
- Seminars and Clinics on Medical Ignorance
- Freshman Colloquium and Workshops on Introduction to Medical and Other Ignorance
- Questions and Questioning Exercises
- Creative Thinking Exercises

ACTIVITIES / COURSES

- Final Oral and Written Reports on Selected Topics in Medical Ignorance
- Weekly Ignorance Logs
- Ignorance Field Trips
- Monthly Pondering Rounds
- Ignorance Ward and Grand Rounds
- Ignorance Conferences
- Visiting Professors of Medical Ignorance
- *La Residencia del Incógnito*