

Surgery/Interdepartmental Medicine 800A RESEARCH DISTINCTION TRACK APPLICATION

Name:

Date:

Local Address:

Home/Cell Phone No.:

e-mail:

Class:

Beeper:

Soc. Sec. No. :

Student EIN No.:

Date of Birth:

Ethnic Classification (check one):

- American Indian or Alaska Native
- Asian
- Hispanic
- Other (specify):

- Native Hawaiian or other Pacific Islander
- Black or African American
- White

Please attach your **Curriculum Vitae** which should include the following:

- Education (after high school)
- Previous Research Experience
- Honors, Publications, and Presentations
- Current Career Goals

**Please submit your completed
RDT application and attachments
electronically to:
grace@surgery.arizona.edu**

Title of Proposed RDT Research:

Faculty Mentor (Name, academic title & department):

PROVIDE THE FOLLOWING AS A SEPARATE ATTACHMENT:

1. Research Proposal:
 - List of questions proposed
 - Background of problem/research topic
 - Hypothesis
 - Methods to be employed
 - Significance of the research topic
 - References
2. Estimated time-line for experiments to be carried out
3. Statement of endorsement from faculty sponsor
4. Clearance from Human Subjects Committee (Rochester test results) and/or University Animal Care (protocol #)

Surgery/ Medicine 800A: Research Distinction Track

6 units senior elective credit

Course Requirements:

- Find a mentor
- Submit a research proposal for approval by the Medical Student Research Committee
- Register (upon approval)
- Complete a minimum of 120 hours of research work that will generally be a continuation/ follow-up of your earlier research.
- Attend at least 8 elective-sponsored meetings or seminars
 - o 2 journal club presentations required per person
- Write a final paper of at least 10 pages in scientific journal format
- Oral presentation (30 minutes)

Contacts:

Christine Gruessner, '13

Alice Ferng, '14

Dr. Marlys Witte

christine.gruessner@gmail.com

aferng@email.arizona.edu

grace@surgery.arizona.edu (626-6360)

Application Process: Guidelines

In order to enroll for this semester:

- 1) Please notify the program of your intent to enroll by emailing Grace Wagner, Program Coordinator, Senior, at this email address (grace@surgery.arizona.edu), and by setting up an appointment with Dr. Marlys Witte, Program Director. All application materials (explained below) need to be submitted to the Medical Student Research Office (Rm. 7338).
- 2) Stop by the Medical Student Research Office, Room 7338 and pick up a Research Distinction Track (RDT) Application Form. Please note this form is very similar to the Medical Student Research Program (MSRP) form (the paid summer program) with the addition of a proposed timeline. If you are planning on continuing your MSRP project for the RDT, then you may submit the same application but with the additional timeline and the RDT Application form filled out (MSRP application forms cannot be submitted instead).
- 3) Look for a mentor on the MSRP website, <http://www.msrp.medicine.arizona.edu/facultysponsors.htm>, in the MSRP office's Sponsor Directory binder, or find one on your own.
- 4) Before approaching the professor, pick up a copy of the course outline for yourself (if you don't have one) and one for your professor. Also, pick up a copy of the "Letter to Potential Mentor" to help further explain to the mentor what will be expected of him or her to help you complete the requirements for the elective.
- 5) Set up an appointment with the professor.
- 6) If there is a match, fill out the RDT Application form and the additional research proposal to be submitted to the Medical Student Research Committee for approval.
- 7) Enroll for Surgery/Interdepartmental Medicine 800A: Research Distinction Track through Student Records. (Keep in mind students can enroll in the program anytime.)
- 8) Keep an eye out for future notices regarding seminars and journal clubs that can be attended to help fulfill the requirements of the course.

Please direct future questions to Grace Wagner at grace@surgery.arizona.edu or 626-6360.

Surgery/Interdepartmental Medicine 800A - Research Distinction Track Course Outline

Dr. Marlys H. Witte, Professor of Surgery, Director, Medical Student Research Program

Offered year round

UA College of Medicine faculty directly supervise this course.

6 units

Prerequisites: Students must be matriculated in the four-year College of Medicine program leading to the MD degree

Goals

1. To enhance research awareness, skills and productivity in a continuum during medical school.
2. To encourage students to value being at the forefront of medicine by becoming scientific physicians, as well as to help fill the gap in the decreasing numbers of translational physician-scientists.
3. To design and implement a research proposal extensive and complete enough to allow the student to pursue a research topic from beginning to completion.
4. To critically review journal articles and give medical students the opportunity to network and present their research.
5. To demonstrate competence in the scientific method.

Format

Summary of Course Requirements

In order to earn elective credit, students must complete the following requirements. When all elective course requirements have been met, the student will receive elective credit of 6 units.

- Submit a research proposal for review by the Medical Student Research Committee.
- Complete a minimum of 120 hours in the laboratory or otherwise engaged in the conduct of the approved research project.
- Participate in at least 8 elective-sponsored meetings or seminars by the end of Year IV. At least two of these 8 meetings must be presentations made by the student at "journal club" sessions.
- Upon completion of the research project, students also will be required to submit a full-length paper (minimum of 10 pages in length in standard journal format with illustrations, ideally ready for submission to a scientific journal) to the MSRC for approval and submit an abstract to their student colleagues. This will be followed by giving a 30-minute presentation of their research.

A more complete discussion of this elective course follows.

Guidelines and Rationale for Enrollment, Course Requirements, Evaluation

- 1. Students identify a mentor and submit a research proposal for review by the Medical Student Research Committee (MSRC) during the spring semester of their first year.**
 - The research proposal should be extensive and complete enough to allow a student to pursue a research topic from beginning to completion for ultimate submission to a scientific journal. Although submission to a journal is highly encouraged, it is not an absolute requirement for Research Distinction. The proposal should contain a list of questions proposed, background of the research topic, methods to be employed, significance of the research topic, an estimated timeline of the experiments to be carried out, references, and a statement of endorsement from the mentor. Guidelines for the mentor's role and expectations for the medical student will be provided to the mentor prior to starting the program.
 - The Medical Student Research Committee is a faculty-nominated and elected committee, composed of 6 members from the basic and clinical sciences elected for staggered 3-year terms. Dr. Marlys Witte, Professor of Surgery and Director of the Medical Student Research Program serves as *ex officio* member. Three medical students actively involved in research also sit on the committee.
- 2. The student must complete a minimum of 120 hours (3 weeks at 40 hours per week equals 6 credits) in the laboratory or otherwise engaged in the conduct of the approved research project. This will be documented on time sheets. Students must demonstrate competency in the scientific method throughout the project.**
 - If a research topic requires the use of animal or human subjects, radioactivity, or hazardous substances or devices, the appropriate mandated safety courses must be completed. These courses are not included in the 120 hours minimum.
 - Most investigations will require more than 120 hours of research work. Students must understand that the research project will be considered complete when the research topic has been fully investigated with the approval of the mentor, not upon completion of the 120 hours.
 - The scientific method consists of developing a hypothesis, performing the right experiments to answer the questions stemming from the hypothesis, collecting and analyzing the results and drawing conclusions, while remaining current with and utilizing the current literature surrounding the research topic.
 - Lab hours from the summer Medical Student Research Program may not be used towards the completion of the 120-hour minimum but the research accomplished may be included as part of the overall research project.
 - Since research is unpredictable, semester updates on the progress of the student's research will be provided to MSRC. The updates must be signed and approved by the student's mentor prior to submission.
- 3. Students must participate in at least 8 elective-sponsored meetings or seminars by the end of Year IV, in addition to meeting requirements of the mentor's lab. At least two of these 8 meetings must be presentations made by the student at "journal club" sessions. Elective-sponsored meetings and seminars will be scheduled at least monthly for 9 months**

of the academic year. They will be oriented to various activities: every other month seminars and student presentations will alternate with a "working" journal club featuring key articles the students are reading related to their research topic of general interest.

- The seminar and student presentation meetings will coincide with the sessions of the "Understanding Medical Research as a Future Physician" Enrichment Elective run by the Medical Research Awareness Club*. These sessions usually consist of visiting physician-scientists from the world-wide scientific community, as well as the University of Arizona College of Medicine's own faculty.
 - For the "working" journal club sessions, 3 students will be assigned to present and lead the discussion of journal articles of their choosing. Assigned students must distribute a photocopy of one scientific article on each student's chosen research topic at least one week prior to their presentation date. The students not assigned to present at a specific meeting will critically review the article in order to discuss the article with the student leading the discussion. Presentations will last for 15 minutes. A minimum of 2-3 resource faculty will be assigned to each meeting in a rotating fashion to include faculty mentors and MSRC members.
 - The meetings/seminar sessions also will give medical students the opportunity to network and present their research, which will be especially helpful for students presenting at international/national meetings by providing practice in front of a large audience prior to their actual presentation.
4. **Upon completion of their research projects, the students will be required to submit an abstract to their peers and present a 30-minute presentation, which should be designed to include 10 minutes for questions. Students also are required to submit a full-length paper (minimum of 10 pages in length in standard journal format with illustrations, ideally ready for submission to a scientific journal) to the MSRC for approval.**
 5. **The mentor will be required to submit a letter noting the student's competence in the scientific method and completion of laboratory requirements, as well as a statement citing the mentor's recommendation for "Research Distinction." MSRC will meet with each candidate and address outstanding questions about the research work and fulfillment of the requirement.**

Rationale

University of Arizona medical students are currently participating in research projects in the health sciences in addition to meeting the graduation requirements of the medical school curriculum. These students are often publishing their research in national/international journals and participating in regional and national conferences, bringing honor to the College of Medicine and furthering the discovery mission of this Research I University. In addition, the College of Medicine has been receiving further recognition due to the numerous current and past medical students who have won awards at these regional and national meetings, attained advanced research/faculty positions, and gained attention from the international biomedical community.

The concept and implementation of credit for research is not new. Students at the University of Arizona College of Medicine, depending upon what specialty they choose, currently can receive maximum elective credit ranging from 12-30 units for basic or patient-oriented research - but only in the senior elective year. In main campus departments, such as Molecular and Cellular Biology, undergraduates with declared majors can receive up to 13 units per semester for independent study

including supervised research prior to their senior year. The Medical Research Awareness Club* also found that many medical schools throughout the United States offer electives in research, designate the MD degree with Honors or Research Distinction, or require research for graduation. The number of schools with such programs is increasing and includes the University of Washington, University of California in Los Angeles, University of New Mexico, University of Oklahoma, New York University and Duke University, among others.

We believe that the University of Arizona and the College of Medicine can reap great benefits by modeling itself after these programs. Innovating this effort is particularly timely in view of the national push to enhance clinical research preparedness. In addition, the importance of having a research experience for many competitive residency programs gives further reason to help distinguish our students, giving them an advantage when competing with students from other institutions that either have research requirements, academic-credit based research electives or a research pathway prior to the senior year.

Providing credit for participation in extracurricular but medically related programs already exists in the University of Arizona College of Medicine curriculum. Precedence has been established in the form of the popular Commitment to Underserved People (CUP) Program and the new Cardiopulmonary Resuscitation Teaching course (Med 896). In both of these electives, students begin the work of the elective prior to Year IV.

As before, with these ideas and precedents in mind, and with the growing interest within the University of Arizona College of Medicine, we propose an academic-credit based research elective that can be taken prior to the senior year and therefore enhance research awareness, skills, and productivity during the continuum of medical school. This type of program will encourage more medical students to get involved in research and enable the students to graduate with "Distinction in Research". Ultimately, this experience will enhance a student's overall level of education and lead to greater care for future patients. Further, this program should serve to encourage more students to be interested in being at the forefront of medicine by being scientific physicians, as well as to help fill the gap in the decreasing numbers of translational physician-scientists. In doing so, the overall quality of health care and biomedical science for our nation will be improved.

In conclusion, the Medical Research Student Association* would like the research elective to be implemented in the spring semester, 2000. Ideally, participants in the program will apply for admission to the program in the beginning of spring of their first year or alternatively at a later time as long as they complete their research distinction requirements before graduation. We think that competency in research along with an understanding of how to critically read scientific journals and communicate research findings are important aspects of the medical educational process that will positively enhance our performance as future faculty, research scientists and/or practitioners.

Appendix

* What is the Medical Research Student Association (MRSA)?

As future physicians, being able to critically read a scientific journal along with keeping abreast of new medical innovations is an important facet of practice that can profoundly impact patient outcomes. Because the University of Arizona is a Research I institution, the opportunities to stay on top of current medical literature and learn from world-renowned medical researchers should be multifaceted and numerous. With this in mind, students from the class of 2002 started the Medical Research Student Association. The organization draws from university resources to encourage the development of translational scientists, including scientific physicians as well as physician-scientists, who will work to

make important/vital connections between basic science and clinical practice to benefit their patients. This is why MRSA is proposing a "Research Distinction Track" elective.

As the support and interest generated within the class of 2002 for medical school research opportunities has blossomed, other classes (2001 & 2003) have begun to express an interest in this collaborative effort and in building a student research community at the University of Arizona.



The University of Arizona Chapter
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Tucson, Arizona 85724-5200
Phone: (520) 626-6360
Fax: (520) 626-0822

March 21, 2012

Dear Faculty Member:

The Curriculum Committee has approved the Research Distinction Track elective for 6 academic credits. This addition to the curriculum was initially proposed by the Medical Research Student Association (MRSA)* to promote research as a part of continuing medical education. We believe this is particularly important in light of increasing faculty support for expanding research opportunities for medical students.

At this time, we would like to extend an invitation to all clinical and basic science faculty to enlist as a potential research mentor for medical students. Additionally, there is an opportunity for faculty to present research seminars as part of the elective's mandatory sessions. (Please see below/attached for elective specifics). Interested faculty should contact the Medical Student Research Program (MSRP) at 626-6360.

Your support and participation is greatly appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Christine Gruessner".

Christine Gruessner, Class of 2013
Co-President
Medical Research Student Association*

A handwritten signature in cursive script that reads "Alice Ferng".

Alice Ferng, Class of 2014
Co-President
Medical Research Student Association

A handwritten signature in cursive script that reads "Marlys H. Witte, MD".

Marlys H. Witte, MD
Professor of Surgery
Director, Student Research Programs

* Students from the class of 2003 founded the Medical Research Student Association. The club draws from university resources to encourage the development of translational scientists, including scientific physicians as well as physician-scientists, who will work to make vital connections between basic science and clinical practice to benefit their patients. MRSA is currently in the process of developing this organization into a national student association.