

Contact: Diana Gonzalez

**PROPOSED NEW PROGRAM AT THE UNIVERSITY OF IOWA
INTERDISCIPLINARY M.S. AND Ph.D. PROGRAMS IN HUMAN TOXICOLOGY**

Action Requested: Consider recommending approval to the Board of the request by the University of Iowa to establish interdisciplinary M.S. and Ph.D. programs in Human Toxicology to be administered by the Graduate College with support from the Colleges of Public Health and Medicine.

Executive Summary: The proposed programs will prepare toxicologists to identify and assess environmental exposures of concern; identify mechanisms by which toxicants (chemical, biological, or radiological agents) affect homeostasis or induce disease; identify interventions for the prevention of adverse effects; and estimate acceptable levels of exposure to protect public health. Given its history in training and research related to the areas identified above, the University is well-positioned to train toxicologists at the M.S. and Ph.D. levels using an interdisciplinary approach. Graduates would find employment in academia, government, non-governmental organizations, and industry. This proposal was reviewed by the Board Office and the Council of Provosts and is recommended for approval. No concerns were raised when it was presented to the Iowa Coordinating Council for Post-High School Education.

Background:

- ◇ **Description of field.** Toxicology is “the study of the adverse effects of chemical, physical, or biological agents on living organisms and the ecosystem, including the prevention and amelioration of such adverse effects¹.” Best studied in an interdisciplinary setting, the field draws on expertise from chemistry, physiology, pathology, genetics, statistics, and risk assessment sciences.
- ◇ **Duplication.** A toxicology program, called “Interdepartmental Toxicology” is available at Iowa State University. The ISU program emphasizes the strengths of the College of Veterinary Medicine and focuses on the study of the effect of toxicants, including pesticides, on animals (farm animals in particular) and the modulation of these effects by nutrients and nutrition. The proposed program at SUI will focus on human health and translational medical aspects of toxicology; research and instruction will have different applications and emphases from ISU’s program. There are no other similar programs in Iowa.
- ◇ **Resources for the Programs.**
 - ☑ Program faculty will be drawn from the Colleges of Medicine, Public Health, Pharmacy, Engineering, and Liberal Arts and Sciences. Participating faculty have received extramural support for toxicology training and research, including a National Institute of Environmental Health Sciences (NIEHS) Center and a Superfund Basic Research Program. The proposed programs will participate in the Biosciences Program umbrella for the recruitment, admission, and training of Ph.D. students.

¹ Source: Society of Toxicology.

- ☑ With the creation of a new course, Advanced Toxicology, all courses are in place to provide a course of study for M.S. and Ph.D. toxicology students.
- ☑ According to the University, adequate laboratory and library facilities exist to accommodate the proposed program.
- ☑ There will be a director of the proposed program who will receive 15% released time from his department, Occupational and Environmental Health. There will also be four part-time (50%) graduate research assistants.

- ◇ Cost. In the first year, the total cost of the proposed program is projected to be \$211,012, of which approximately 57% will be reallocated by the Graduate College; 9% will be reallocated by the Department of Occupational and Environmental Health; 22% will be funded by a grant from the National Institute of Environmental Health Sciences Superfund Basic Research Program; and 12% will be funded by a grant from the Environmental Health Sciences Research Center. By the seventh year, the total cost of the proposed program is projected to be \$266,997.

- ◇ Need/Demand. The proposed program will enable the University to prepare individuals to work in this critical field, considering the prevalence of chemical use and toxicant exposure in society. The initial enrollment will be four students reaching a high of 24 by year 6. Graduate students, primarily doctoral students, will be recruited nationally and internationally.

- ◇ Quality. The goal of establishing a non-departmental interdisciplinary program in Human Toxicology is consistent with the mission of the Graduate College to foster communication, collaboration, research, and graduate training across traditional departmental and collegiate boundaries.

- ◇ Link to Strategic Plan. The proposed program is consistent with the University of Iowa's 2005-2010 Strategic Plan (Goal 2, Strategy 2) – “improve the infrastructure and culture central to the growth of research, scholarship, and creative work, including interdisciplinary and international efforts, by identifying opportunities for investment and the intersection of existing University strengths and extramural funding opportunities; and adopting administrative structures and incentives that encourage strategic cross-unit collaborations.” It also supports the Board of Regents' strategic plan to “ensure high-quality educational opportunities for students.”

Responses to the Board of Regents' program approval questions are on file in the Board Office.