Brief description of Summer Research Project (please explain the interdisciplinary nature of this project).

Each year 1.5 million people are diagnosed with cancer and at this very moment there are millions of people undergoing chemotherapy, each receiving around ten treatments per year. A large percentage of cytotoxicants used in chemotherapy pass through a person’s body unabsorbed. Recently there has been speculation in the scientific literature that secondary exposure to excreted chemotherapy agents may have substantial adverse impacts on public health. It is also acknowledged that little is known about this issue. Accordingly, an REU student is requested to explore the environmental and public health impacts of cytotoxic excretions from an interdisciplinary standpoint (i.e., environmental engineering, toxicology, environmental science & public health).

The student will be co-mentored by Kathleen Arcaro in Vet and Animal Science and Tom Zoeller in Biology.

Brief description of what the student will be doing:
The student will work to develop a baseline assessment of public and environmental health risks of cytotoxic excretions from cancer patients by:

- Conducting a literature review to gather key information on the most commonly-used cytotoxicants, including basic physical and chemical properties, absorption in humans, reactivity, persistence, and toxicity.
- Developing a database from the literature of known or predicted removal efficiencies in water and wastewater treatment, environmental fate, exposure pathways and concentrations.
- Utilizing this information to identify potential human and environmental health risks.
- Identifying analytical methods of potential use for detecting these compounds at low concentrations in environmental water samples.
- Refining analytical methods in the laboratory and collecting some baseline data on concentrations at various points across municipal wastewater treatment facilities.
- Utilizing the above information to identify a methodology for a baseline assessment of secondary exposure risk in the US.

Is this a CASA-related project? Yes _x_ No ___

Preferred background of student (major(s), class, GPA, pre-requisites, etc.):
Environmental Engineering, Vet/Animal Science, Microbiology, Environmental Science, Environmental Health Science or Analytical Chemistry
Student between junior and senior year

Did you mentor a student last summer in the College REU Program?
Yes____  No _X_

If yes, please describe the outcomes for that student (i.e. Honor’s thesis, conference presentations, manuscripts, papers, etc. Describe accomplishments to date as well as plans for the spring semester if the work has continued):

Please return this form to:

Lorraine Robidoux,
REU Program Coordinator
129 Marston Hall

By Friday, February 5, 2011