

**Department of Chemistry
COLLEGE OF ARTS & SCIENCE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 9, 2015

The Department of Chemistry is pleased to offer the following research project for the summer of 2015. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

PROJECT TITLE: Ionizing Radiation and Translation

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Project Description

Prior reports have shown that ribonucleic acid (RNA) and the associated translational machinery (e.g., ribosome and extra-ribosomal proteins) are subject to radiation-induced damage in a variety of biological conditions. However, there is a paucity of studies focused on identifying correlations or causal connections between such damage to the translational machinery and organism health. This research seeks to understand whether melanized fungi possess unique mechanisms for coping with radiation-induced damage within their translational machinery.

A WISE student would spend her summer being trained to identify radiation-induced changes to post-transcriptional and post-translational modification patterns of a wide variety of RNAs and associated proteins that participate in translation. She will use modern quantitative proteomics to examine the changes in protein expression upon radiation exposure and the extent that damaged translational machinery can lead to errors within the proteome.