**Project Proposal Examples**

Randal Research Scholars Proposal Form

Please submit this form to <rrsp@ua.edu>

Project Director Information

Name:

Preferred Title:

Campus Phone:

Email Address:

College:

Department:

Office Location:

Campus Box #

Project Information

**Project Title:** Metabolic pathway prediction in complex organisms.

**Brief Project Description:** The goal of this project is to predict the metabolic pathways of the 12 *Drosophila* (Fruit Fly) species based on their annotated genomes under the guidance of Dr. Clare Scott (Reed Postdoc) and Dr. Reed. The Pathway Genome Database (PGDB) of each species will be used to identify metabolic pathways that are 1) conserved across species and 2) unique to species. The ultimate aim of the project will be to link the metabolic pathway in the PGDB with a database containing known metabolites of *Drosophila.* This is part of the mission of the International Drosophila Metabolomics Curation Consortium. This is expected to be a multi-semester project with new aspects added in the future. Multiple students working together may be appropriate.

**Amount of time per week director will spend on project with student:** One to two hours. Also, if schedules permit, students will be encouraged to attend additional group meetings with members of the Reed lab.

**Student Responsibilities/Scope of Student Involvement:** Student(s) will work with Drs. Scott and Reed to prepare the PGDB for each species, establish methods of comparing pathways in different species, and link each PGDB with a *Drosophila* Metabolite Database. All aspects of the project will use open source software.

**Software Packages or Languages Utilized (if known):** Possible Software: Metabolic Pathway Prediction/PGDB Generation (PathoLogic, Pathway Tools, Lisp), PGDB comparison (Python, Perl), Front end-DB linkage (Python, Java C, Perl)

**Beginning Semester/year of project:** Fall 2015

**Deadline or Time Constraints for Completion of Project:** Ongoing. We will identify discrete goals for each semester but we would hope that the interested students would stay involved in the project for multiple semester.

*Note: If any of the above information is currently undetermined or to be determined by the student, please state.*

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**Project Title:** Blogging Habits of Football Beat Writers: Third Edition

**Brief Project Description:** In 2012, we began to analyze the blogging habits of those beat writers covering football teams in the Southeastern Conference. We were interested in how much blogging the writers were doing on a daily basis during the weeks of the football season. The project later updated with interviews with a few of the beat writers (Second Edition) to include interviews as we compared the activities of those writers in 2013. Now, four years later, we want to do a THIRD edition of the study as we prepare for submission for publication in an academic journal.

**Amount of time per week director will spend on project with student:** Two hours per week.

**Student Responsibilities/Scope of Student Involvement:** We have TWO computer dilemmas we think an RRS student assistant could help us solve: 1) Better way to monitor the blogs of 14 beat writers (besides visiting their sites every week and saving links in an EXCEL spreadsheet) and 2) How can we utilize transcription software to facilitate processing interviews with the beat writers?

**Note:** A graduate assistant will be working on this project to handle data and library research as part of this study. But, the RRS student may be asked to help with CODING some of the sports blogging content. This will require the ability to understand how a web log works and minimal knowledge of SEC football.

**Software Packages or Languages Utilized (if known):** EXCEL and another transcription software package?

**Beginning Semester/year of project:** Fall 2016

**Deadline or Time Constraints for Completion of Project:** Want to complete the data collection by the end of November 2016—would need to have computer solution.

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Project Information

**Project Title:** Cell Surface Proteomics of Cancel Stem Cells

**Brief Project Description:** The cell surface proteome of cancel cell lines and especially their stem cell subpopulation will be characterized. Research goals include a) successful in vitro culture of human cancer cell lines, b) successful separation of the membrane proteome, c) identification of differential surface protein expression throughout cell lines and cancer types, d) identification of specific proteins on cancel stem cell lines that can be used as novel drug targets or cancel markers.

**Amount of time per week director will spend on project with student:** 1-3 hours per week.

**Student Responsibilities/Scope of Student Involvement:** The student will function initially as an introductory researcher on the project in order to enhance the learning curve. Many aspects of the project’s experimental design/execution have been tailored to our lab and our procedures over the last few years, and learning these methods will be the primary tasks of the position for the first few months. After this introductory period, the student will quickly be integrated into the experimental design process and meaningful data production and analysis.

**Software Packages or Languages Utilized (if known):** MALDI-TOF mass spectrometry, protein isoelectric focusing, SDS-PAGE protein digestion, cell culture

**Beginning Semester/year of project:** Fall 2014

**Deadline or Time Constraints for Completion of Project:** Cell work is often a long process to obtain a meaningful level of expertise and project ownership. Thus, we would hope that someone could make a long-term commitment to the lab.

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