

# ***MBUR - 2012***



## ***M*athematics and *B*iology *U*ndergraduate *R*esearch**



### **Department of Mathematics and Statistics - Department of Biological Sciences**

The MBUR program is funded by NSF to support undergraduate student research at YSU. This program brings undergraduate mathematics and biology students together to engage them jointly in advanced interdisciplinary research at the boundaries between Mathematics and Biology.

Applications to the program will be accepted during the fall semester and the program will begin spring semester 2012. Students from each discipline will be paired together and each student team will design, plan, and carry out a research project under the direction of Biology and Mathematics faculty members. Students selected to participate will undergo training during the spring semester, conduct full time research during the summer and write up and present their results during the fall semester.

Each research project will require intensive efforts and students should anticipate working 40 hours per week during the first 10 weeks of the summer semester (May 21-July 27). **[A stipend of \\$3800 will be paid to each student participant during the summer.](#)**

During the fall semester, students will be expected to complete their projects and write a summary report of their research efforts and provide an oral presentation to other program participants. Subsequent student presentations at YSU Quest, as well as regional or national scientific meetings, are also expected. **[Students will be eligible to receive an additional stipend \(\\$700 maximum\) during the fall semester.](#)**

Student research projects may be chosen from the following projects:

***Neuronal activity patterns in prefrontal cortex neurons, and  
Cardiac dynamics and susceptibility to rhythm disturbances.***

Dr. Womble (Biology) and Dr. Jolics (Math).

***Modeling the growth of bacteria in toxic environments by cell count and proteomics.***

Dr. Caguait (Biology) and Drs. Yates and Smotzer (Math).

***Cooperative gene expression patterns during fungal morphogenesis.***

Dr. Cooper (Biology) and Dr. Yates (Math).

***Mathematical Modeling of Riparian Ecosystem and Land-form Dynamics.***

Dr. Diggins (Biology) and Dr. Yates (Math).

Participants must be YSU students, and U.S. citizens or permanent residents. Women and minorities are strongly encouraged to apply.

[Applications](#) and additional information may be obtained at:

**<http://mbur.ysu.edu>**

**[Application](#) Deadline is December 9, 2011**