



*Sponsored by the University of Colorado at Boulder*

**Biological Sciences Initiative  
Bioscience Undergraduate Research Skills and Training Program  
BURST  
2011 Summer Application**

**BURST** awards are available to undergraduates with little or no research background interested in gaining experience in a bioscience or bioscience-related research lab. Students work on projects under the guidance of a faculty member. Preference for awards is given to sophomores and juniors.

Eligibility extends to currently enrolled full-time CU Boulder students who have a minimum 2.0 GPA. Students who have graduated before the start of the BURST award or plan to graduate during the term of the award are not eligible. Students earn \$9.00/hour and can apply for a grant up to \$2,500 for the summer. Scheduled time in the lab will be determined by the student and the faculty mentor; however, a typical work week is usually between 30-40 hours.

**Students: As a requirement of this award**, you are expected to participate in various professional development seminars and activities throughout the summer. These *skills and trainings* are designed to both inform and enrich the undergraduate research experience. To start the program, students will attend a **mandatory orientation that will be held Monday May 9, 2011. Students who are not able to attend the orientation will not be able to participate in the BURST program.** During this orientation, BSI will go over program information, lab organization, keeping a lab notebook, experimental design, safety and more. During the summer, students will attend other workshops, and the program will culminate with all students doing a short presentation of their research and submitting a written research proposal. Lastly, students will be required to complete various evaluations of both the individual sessions and the entire program.

**Important notes:**

Due to the limited availability of research funding for undergraduates on campus, students may not receive a BURST award in addition to another source of wages, such as a UROP or departmental grant, for their research.

**Background Check** - *The University of Colorado at Boulder is committed to providing a safe and productive learning and living community. To achieve that goal, we conduct background investigations for all final applicants being considered for employment. Background investigations include reference checks, a criminal history record check, and when appropriate, a financial and/or motor vehicle history.* Students will not be accepted into the program until BSI receives an approved background check from Human Resources.

**Faculty: As a requirement of this award**, you are expected to attend a mentor training session. This training, mandatory for all graduate students and post-docs who oversee the day-to-day training of undergraduates, is designed to create a meaningful mentor/mentee relationship. The training will provide participants with the *skills and training* on designing meaningful research projects for undergraduates and on orienting their mentees to the lab. In addition, mentors will receive information on recommended strategies for working with students; will receive tips for issue management and conflict resolution; and will receive information on campus resources.

To apply, please complete the application and return it to the BSI main office, Porter B058, by **noon on Tuesday March 1, 2011**. Questions about the program can be directed to [BSI@colorado.edu](mailto:BSI@colorado.edu) or 303-492-8230.

To be completed by the Faculty Mentor in collaboration with the prospective student: (Please complete on separate sheets and attach to application)

1. Project title.

*Parasitic Trematode Infections in the Gastropods of Eastern Colorado: Implication for land management and wildlife health.*

2. Please describe the research in your laboratory.

*The research in the Johnson lab centers on trematode parasites and their hosts. Dissections and small mesocosm-scale experiments are common within the lab while larger field studies collecting first intermediate hosts and second intermediate hosts routinely occur. The Townsend lab focuses on biogeochemical cycles in soils, surface waters, ground waters, and biological materials. Measurements of carbon, nitrogen, and phosphorus are common in the Townsend lab using colorimetric and chromatographic approaches. These two research areas are complementary as surface water nutrient concentrations have been suspected to influence trematode abundance through multiple causal mechanisms.*

3. Please describe the project the student research assistant will be assisting with and what their responsibilities will be.

*The student research assistant will be assisting in both lab and field-based studies. The field site is located 1.5 hours east of Boulder. The student research assistant will be collecting snails via a dipnet by walking around the perimeter of several ponds in the field area. Once the snails are collected they will be brought back to the lab and the student research assistant will aid in measuring these snails, cracking them open, and inventorying them for trematode infections. Studies will also be conducted on behavior modification of snails by particular parasites by observing snail behavior in the lab. The student research assistant will also assist in nutrient analysis in the lab when applicable.*

4. Please indicate which of the following trainings the student will require for his/her project: animal care, hazardous material, radiation safety, and whether they have already completed it or not.

*Hazardous materials – not taken yet*

5.a) How do you view your role as a mentor and what can the student expect of you?

*My role as a mentor is to expose the student to scientific research in my field of expertise and to support the student in formulating and carrying out studies stimulated by their own questions and interests that align with my field of expertise. I am to provide the student with logistical and content support to deepen their understanding of science and the scientific process. I am to offer my best as far as instruction and support.*

b) What do you expect from the student as a research assistant?

*The student research assistant should offer their best as far as (I) punctuality, (II) dependability, (III) hard work, and (IV) intellectual engagement. This means that the student research assistant must always be present at appointed times and carry out work according to my direction to the best of their ability. The student should be aware that field work will involve long and hot days in the field as well as many hours using a microscope (sometimes on weekends). The student is expected to engage intellectually as well so that the experience is fruitful for their scientific development.*

6. Who will have the primary responsibility of working with and training the student research assistant and what are her/his qualifications? How will this student be integrated into your lab?

*I (John Mischler) am responsible for working with and training the student research assistant. I have advised undergraduate projects before both in the lab (affects of bird behavior on parasite load) and in the field (the relevance of shell beds in Lake Tanganyikan (Tanzania) shell beds for benthic ecosystems). My career path is towards teaching at a small liberal arts institution, thus advising undergraduates is a priority for me.*

7. Beginning and end dates of proposed research: *May 9, 2011 to August 5, 2011*

(Possible dates range from: May 9, 2011 to August 5, 2011)

Based on the hourly wage of \$9/hr, please calculate the total award you are requesting below:

$\$9.00 \times 20 \text{ (hrs per week)} \times 14 \text{ (weeks)} = \$2500 \text{ BURST grant request}$