Undergraduate Research Grants
General Instructions

The Ecosystem Science Center (ESC) announces the availability of research grants for undergraduate students. The grants are intended to give undergraduate students an opportunity to gain experience in writing competitive grants, and to gain experience in science by conducting their own research project. Allowable costs include lab supplies, sample analysis fees, field equipment, personnel and travel to research sites. The research involved should be related to the interests of the Center (http://ecosystem.mtu.edu/mission.htm).

There are two Application deadlines each academic year:

The 1st Friday of December & the 1st Friday of March

- Grants are limited to $750 and funds are to be expended within one year of an award.
- A budget listing anticipated expenditures must be provided.
- An undergraduate student is eligible to receive a maximum of one research grant per academic year.
- Publications resulting from ESC supported research should formally acknowledge the ESC and posters and presentations of supported research should display the ESC logo (see ESC web site – bottom of resources page on website).

ESC undergraduate research grants are competitive. The grants will be judged by a panel of 3-4 ESC members on the following criteria: scientific merit, quality of writing, justification for ESC specific dollars, and relatedness to ESC mission. Feedback will be given for all proposals that are reviewed. Students who apply in December and are declined funding may re-apply in the spring.
Detailed instruction for proposal authors

Your proposal should typically include or address all of the following components.

Scientific Merit: The proposed work should make a novel contribution to knowledge or understanding and its scientific merit should be clear to the reviewer, who may not have expertise in your field. Careful attention to the required elements described below for each proposal section will help achieve this goal.

Quality of Writing: The proposals should be clearly written, including well organized sections using proper grammar and spelling.

Proposal Sections:

Title: The title should reflect the subject of the proposal.

Background: The background section should provide the larger scientific context of the proposed work. It should also be clear how the proposed work fits into this scientific context. Assume your audience is intelligent, but has little direct knowledge about your research topic and why it is important. Introduce your study from a broad context then into a narrower context that will link to the specific questions to be asked or hypotheses to be addressed.

Objectives: If the work is part of a larger project, summarize the broader objectives of that project. Also state the specific objectives for the work to be carried out by the funds requested in your proposal. It should be clear that your request is for important additional work. These objectives should clearly arise from the background provided.

Hypotheses/questions: The hypotheses or questions to be addressed in this proposal should be clearly stated, and testable or answerable. They should be clearly in line with the background and objectives.

Methods: The link between hypotheses/questions and methods should be clear. The proposed methods should be appropriate for testing the hypotheses or answering the questions defined above. They should briefly but clearly define the study sites, sampling and analytical techniques to be used. If there are important measurements or analyses related to your research request that are being addressed by a larger project, please briefly describe them and the fact that they are being supported by the larger project. Otherwise, you risk reviewers asking “why isn’t XXX measured?”. It is understood that $1,000 will only fund a small amount of work, but it needs to be clear how it fits in to the larger scheme of some projects. Your methods should primarily describe what you will use the ESC funds for, but background on other activities occurring at the study location can help reviewers as they assess your specific request. The methods should include a timeline for field measurement, lab and data analysis, and writing/presentation activities.

Budget and specification of how ESC funds will be used: The budget should be appropriate for the costs of the proposed work. If the proposed work will require more funds than available from the ESC grant, state other sources of funding available, or how the work will be scaled back if other funding is not obtained.

Relatedness to ESC mission: This should be made clear in the Background section of the proposal. Any proposal deemed inappropriate for the ESC will not be reviewed. The ESC mission statement is: "To promote understanding of ecosystem function through education and research at MTU." The ESC is designed to advance our understanding of how ecosystems function and how human activities influence ecosystem processes.
Evaluation Guide for Proposals

Panelists, use the electronic scoring sheet provided to assess the following:

**Scientific Merit**: Is the proposed work likely make a novel contribution and is the scientific merit of the proposal high?

**Quality of Writing**: Is the proposal clearly written, including well organized sections using proper grammar and spelling?

**Proposal Sections**:

**Title**: Is the title concise and does it reflect the subject of the proposal?

**Background**: Does the background section provide the larger scientific context of the proposed work? Is it clear how the proposed work fits into this scientific context? Are ongoing studies to which the ESC funds are an addition adequately (but briefly) described?

**Objectives**: If the work is part of a larger project, is it clear what the broader objectives are? Are the specific objectives for the work to be carried out in this proposal clearly stated? Are they in line with the background?

**Hypotheses:/questions**: Are the hypotheses or questions to be addressed in this proposal clearly stated? Are they testable or answerable? Are they in line with the background and objectives?

**Methods**: Is the link between hypotheses/questions and methods clear? Are the proposed methods appropriate for testing the hypotheses or answering the questions defined above? Do they adequately define the study sites, sampling and analytical techniques to be used? Is sufficient information on other ongoing work at the sites given, where relevant?

**Budget and specification of how ESC funds will be used**: Is the budget appropriate to cover the costs of the proposed work? If not, are other sources of funding for the work specified? Is it clear how the work can be re-scaled if other needed funding can not be obtained?
Undergraduate Research Grant

Date _________________________

This application form should be the first page of your application. When complete, submit electronically as an MS Word document to: esc@mtu.edu

1. Name: Print:_________________________ Signed:_________________________

2. Major Advisor(s): Print:_________________________ Signed:_________________________

3. Title of Research: ________________________________

4. Email: ________________________________

5. Estimated budget request from Ecosystem Science Center:

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Total

6. Previous ESC research grants?

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7. Attach proposal with sections outlined in detailed instructions to authors (2 page max, 11 pt font with 1 inch margins). References should follow the proposal text and use the same font and page margins. They do not count against the two page limit.