

Proposal for Research Funding from the COS Scholarly Activities Committee (SAC)

(Updated January 13, 2020)

This form is to be used to request funds from SAC for scholarly work during the fiscal year from July 1st 2019-June 30th 2020. Completed forms for faculty or staff research must be submitted **electronically** to Dr. Fern Caka (fernc@uvu.edu) by 12:00 noon on Wednesday March 27, 2019. Proposal forms for student projects (category III below) may be submitted at any time during the academic year. Please scan the entire document (including signature page) and send as one PDF file when completed.

Note that this form is to be used to request funds to support research or other scholarly work. It is not to be used to request funds to publish scholarly work. To request funds for publication of scholarly work, please use the "Proposal for Research Dissemination Funding from the COS Scholarly Activities Committee (SAC)" form.

1. Which category of funding are you applying for? (check one¹)

- I. Summer faculty research stipend² ___
- II. Faculty research involving COS students___
- III. Student-submitted proposal_**X**_
- IV. Other (professional development, etc.)___

²A full summer stipend pays a faculty member up to \$7,180 for conducting research during the summer of 2019. Partial summer stipends may be requested. Faculty members who did not receive stipends in 2017 or 2018 will be given priority.

2. Title of project: **Hybrid Advantage in Crucifers**

3. Applicant's Name: [REDACTED]

a. If this is a student-submitted proposal, please provide the following information

- i. Email: e "[REDACTED]"
- ii. Phone #: [REDACTED]
- iii. Faculty/staff mentor name: **Geoffrey Zahn**

4. Number of students to be involved (if any):

Student names (if known):

[REDACTED]

5. Start and stop dates of the project:

February 1- May 1 2020

6. Is this a continuation of a project that was previously funded by SAC? **_NO_**

If so, what work related to the project has been done so far and what are the products of that work?
(Please attach any papers, abstracts, etc.) **N/A**

7. Other sources of funding from this project (*Please note that priority is given to projects that seek funding from sources other than SAC*): **N/A**
- List any other on-campus funding sources you have applied to for this project (e.g., UVU Grants for Engaged Learning, Dept. travel funds, etc.): **N/A**
 - List any off-campus funding sources you have applied to for this project (e.g., NSF, NIH, etc.): **N/A**
 - Is funding already secured from the other source(s)? ____
Source:
Amount received: **N/A**
 - Do you require funding from both SAC and another other source in order for your proposed project to proceed? ____ **N/A**
 - Is part of this proposal redundant with the proposal to the other source (e.g., are you seeking funds for the same equipment from both SAC and the other source)? ____
(If so, and if you are successful in obtaining funds from the other source, any award from SAC may be reduced)
N/A
8. Project summary: Describe the proposed work, paying particular attention to the four evaluation criteria listed in the proposal writing guidelines at the end of this form (please keep to 1-2 pages).

Background:

Crucifers are a worldwide food source that are affected by the fungus *Xanthomonas campestris*. (Jensen et al. 2005) Currently there is no effective way to eradicate the fungus but only preventative ways that are not always effective. (Carisse et al. 2000)

Unknown:

We will be testing cabbage, kale, and cauliflower hybrids with *Xanthomonas campestris* fungus. We believe that a hybrid of these plants will have more of an advantage over *X. campestris* than the treatments they are doing currently.

Plan of Action:

- There will be 40 plants of each type of crucifer. 10 control non-hybrid plants, 10 control hybrid plants, 10 affected non-hybrid plants, and 10 affected hybrid plants. This means we will have 240 plants total to maximize and confirm results. The plant species we are using are: cabbage, kale, and cauliflower.**
- The pathogen, *X. campestris*, will be mixed into the soil for the hybrid and nonhybrid plants, of all 3 crucifers, that will be infected. Each infected plant, hybrid and non-hybrid, will then be randomized into pots filled with the pathogenic soil. The non-**

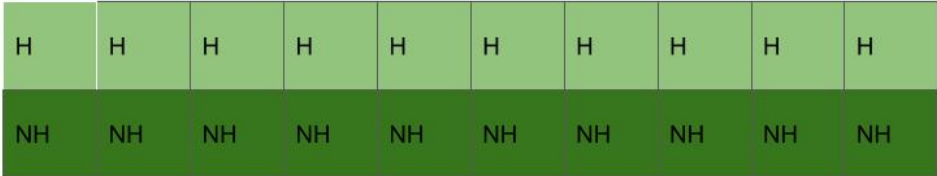
pathogen group of plants will be randomized into pots filled with non-pathogenic soil. This randomizes our placement of the plants.

3. 2 pathogen tents will be used separating the plants with the pathogen and the ones without preventing any cross contamination.
4. We will then allow the plants to grow and observe the fungus on the different crucifers.
5. Percent of leaf damage will be found on the leaves of each plant by extracting the leave and using a camera with black velvet background. This runs a report on how affected the leaf is to the pathogen. Relationships between amount of damage and hybrid species will then be compared.

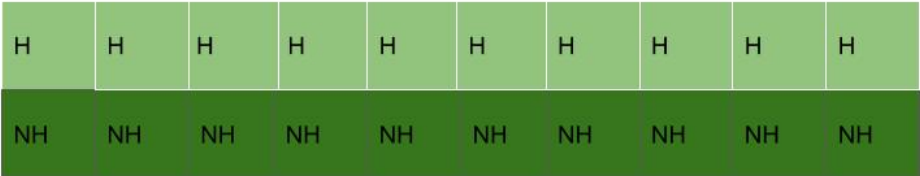
Bibliography:

Carisse, O., A. Ouimet, V. Toussaint, and V. Phillion. 2000. "Evaluation of the Effect of Seed Treatments, Bactericides, and Cultivars on Bacterial Leaf Spot of Lettuce Caused by *Xanthomonas Campestris* Pv. *Vitians*." *Plant Disease* 84(3): 295-99.

Jensen, Brita Dahl et al. 2005. "Field Evaluation for Resistance to the Black Rot Pathogen *Xanthomonas Campestris* Pv. *Campestris* in Cabbage (*Brassica Oleracea*)." *European Journal of Plant Pathology* 113(3): 297-308.



Soil containing pathogen



Non- pathogen soil

Key

H	: Hybrid
NH	: Non Hybrid

9. Outcomes. Please describe any planned outcomes of this work. Outcomes might include presentations by students and/or faculty at professional meetings or department seminars, senior theses, papers for peer-reviewed journals, other types of papers, etc. For any planned outcomes, please provide an approximate date (e.g., “The students will present the work at a Chemistry Department seminar, Spring 2020”).

This project is important for our educational experience. With students pursuing, Botany and Biology degrees, this experiment will better help us to understand the importance of evidence based research by finding the strength of pathogen resistance in hybrid crucifers. This will allow better knowledge on how to navigate through research while furthering education. We will create a poster that displays our data and outcomes of the project. This will be presented with our class, the Science Department, and to students of Utah Valley University. This presentation will further engage students at the university sparking their interest in research and Biology studies. If time allows, we will also attempt to write a peer reviewed article on our findings. This could further benefit the agricultural science community.

10. Budget Narrative.

- a. Materials: Brief description of materials/supplies (if any) needed for the work.

Materials	Use Of Material
Cabbage Seeds	hybrid and non-hybrid seeds used to grow and test pathogen
Kale Seeds	hybrid and non-hybrid seeds used to grow and test pathogen
Cauliflower Seeds	hybrid and non-hybrid seeds used to grow and test pathogen
Pathogen tents	2 tents are needed to keep pathogen separated from non-infected plants reducing any cross contamination
Seedling pots and trays	placement for plants and soil to be kept.
Pathogen: <i>Xanthomonas campestris</i>	To infect and test hybrid vs non-hybrid of each different crucifer
Soil	For seedlings to grow in and develop
Petri Dishes	Used to extract pathogen from the leaves This is proposal 1 of 4 being submitted as part of a Plant pathology course (BIOL 4430)
Photography Pack	Tripod and black velvet will be used to take pictures to find percent of the fungus infected on the leaves This is proposal 1 of 4 being submitted as part of a Plant pathology course (BIOL 4430)

- b. Travel: Brief description of travel needed to complete the work. See *Proposal Writing Guidelines*, below, for restrictions and limitations.
- i. Conference fees: If you are seeking funding to present at a conference, please provide the name, date(s), location, and registration fee (full fee and student fee) of the conference. Also, provide the number of full registrations and student registrations for which you are seeking funding. **N/A**

- ii. Lodging fees: If you are seeking funds for lodging, please provide the dates, city/cities, names and cost per night for modestly-priced hotels in appropriate areas (e.g., near conference), and the number of rooms needed. **N/A**
- iii. Transportation fees: If you are seeking funds for transportation (airfare or mileage), please provide destination, dates of travel, representative airfare estimates and number of people flying or mileage cost estimate (see <https://www.uvu.edu/travel/type/index.html> for mileage rates).

N/A

- iv. Per Diem is available to students only, and only for students traveling to conferences. The per diem rate varies from \$51 to \$74 per day, depending on region being visited (see <https://www.gsa.gov/portal/content/101518> for geographic-specific per diem rates).

N/A

- c. Reassigned time/summer stipend: For faculty seeking reassigned time and/or a summer stipend, please describe the planned schedule of work on this project (e.g., hours per week and number of weeks you plan to devote to the project). Note that SAC will award a maximum of 3 credit hours of reassigned time for the 2019-2020 academic year. Also note that the UVU Office of Academic Affairs is very unlikely to approve more than 3 hours of total reassigned time, from all sources, for the 2019-2020 academic year. **N/A**

- d. Budget table

Materials/Supplies (add additional rows as needed)	Cost
Cabbage Seeds (hybrid & nonhybrid)	20.00
Kale seeds (hybrid & nonhybrid)	20.00
Cauliflower seeds (hybrid & nonhybrid)	20.00
Pathogen tents	600.00
Seedling pots & trays	300.00
Labels	20.00
Soil	80.00
Pathogen	380.00
Material/supply total:	1440.00

Travel	Cost
Transportation	N/A
Lodging	N/A

Conference registration	N/A
Student per diem	N/A
other	N/A
Travel total:	0

Reassigned time*	Cost
Fall	N/A
Spring	N/A
Reassigned time total (≤ 3.0):	0

Total requested budget (material/supply + travel + reassigned time):	1440.00
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* Enter \$3,380 for a 3-credit class. Note that (1) you may request a total of 3 hours of reassigned time, (2) it is preferred that you take any reassigned time in the spring semester, and (3) any reassigned time to drop your ICHE below 12 credit hours will need to be entered as ACHE on your workload report. If you are not requesting release time to drop your ICHE below 12 credit hours, just leave the reassigned time portion of the table blank.

Signature Page

Note to the supervisor: The applicant named below is requesting funds from the College of Science Scholarly Activities Committee (SAC). Please review the application so that you are aware of your faculty member's plans, and so that you are aware of any request by this faculty member for reassigned time to drop his/her teaching load (ICHE) below 12 credit hours for one semester. Please note that any approved reassigned time needs to be entered as ACHE on this faculty member's workload report. SAC will reimburse your department \$3,380 per three-hour class to pay for an adjunct instructor to cover this faculty member's classes.

- 1) Title of project: **Hybrid Advantage in Crucifers**
- 2) Applicant's Name: **Erika Lakin**
- 3) Number of students to be involved (if any): **3**
- 4) Hours reassigned time requested: Fall _____ Spring _____

Printed name of Applicant

Signature of Applicant

Date
01/22/2020

Geoffrey Zahn

Signature of supervisor

Date
Jan 22, 2020

* "Supervisor" is the cooperating faculty member if the applicant is a student, Department Chair if the applicant is a faculty member, or Dean if applicant is a Department Chair

Page Break

Proposal Writing Guidelines

Each proposal submitted will be evaluated according to the following criteria. Please address these criteria in your description of proposed work and your description of the budget. Keep in mind that your proposal should be understandable by people who are scientifically literate, though not necessarily experts in your field.

Evaluation criteria

- 1. How much will the proposed work benefit faculty/UVU? (This will largely depend on the quality and significance of work being proposed)?
- 2. How much will the proposed work benefit students (number of students involved and depth of student involvement)?
- 3. How well written and organized is the proposal?
- 4. How complete is the budget narrative?

Reassigned Time Restrictions

Faculty members may request reassigned time to drop their ICHE below 12 credit hours per semester IF conducting the proposed work would result in the faculty member devoting more than an average of 8 hours per week on research and university service (i.e., non-teaching work) over the course of a semester.

This reassigned time will cost \$3380 per three hours (to pay for adjunct instructors), and this dollar amount will be considered to be part of your request. Proposals for faculty research may request a maximum of three hours of reassigned time per academic year. Requests for reassigned time must be explicitly justified by describing the hours per week that you plan to devote to the project within your project description.

Budget Item Restrictions

SAC may provide funds for:

- Supplies and small equipment,
- Travel to research sites and/or conferences (especially if the applicant is presenting their own work),
- Conference fees (especially if the applicant is presenting their own work),
- Per diem for students traveling overnight to conferences,
- Reassigned time

SAC will NOT provide funds for major equipment, student wages.

Maximum Award Amounts

SAC does not have a set maximum limit for awards. SAC does, however, try to benefit as many COS students and faculty members as possible. The total annual SAC budget is about \$240,000, and we receive dozens of requests per year. Due to the limited budget and the high number of requests, SAC rarely grants more than \$5,000 for any one project (does not apply to the summer stipend), and we try to limit the size of any one grant to about \$1,500 per student involved.

Travel to Conferences

SAC may help to pay for a faculty member to attend a professional conference, so long as that faculty member is also using the departmental travel allowance and the faculty member is presenting his/her work. SAC may help to help pay for students to attend a professional conference so long as (1) the students are presenting their own work, or (2) the proposal states how the students will be held accountable to engage at the conference (e.g., "Students will prepare a list of which technical talks they will attend and provide a written summary of those talks" or "Students will be expected to collect at least five business cards from professionals they spoke with at the conference").