Office of Undergraduate Research & Creative Activities
UNIVERSITY OF COLORADO **DENVER**

Updated: December 2021

Example EURēCA! Applications

Excerpts of recently funded applications written by CU Denver undergrads just like you! Contact undergrad.research@ucdenver.edu for additional guidance as you prepare your application.

Project Proposal (limit 300 words):

a. Briefly describe your research, creative, or other scholarly activity, including specific objectives and significance. Include state-of-the-field references to contextualize your proposed project or activity.
b. Describe how this project or activity will contribute to your professional development.

Proposal Example 2:

In Memoriam (1918/2020) is an artwork and social practice project that builds connections with those lost during the 1918 and 2020 pandemics in Colorado. By reaching out to descendants of the deceased to compile an online platform and self-published book that blends visual art and literature, this artwork will challenge the audience to think about death both collectively and individually. Conceived primarily as a memorial to the victims of the influenza and coronavirus pandemics, 1918/2020 explores a universal experience through a regional perspective. During the early stages of the current outbreak, I began collecting tree bark at Fairmount Cemetery for an art project that would become 1918/2020. Painting them all white with gesso and photographing each individually as floating forms against a black background transforms these scraps of nature into

surreal and otherworldly objects of veneration. By publishing in printed form as well as digitally, this work will preserve memories of the dead in a format that can reach a wide range of viewers. With an additional layer of text inspired by local cemetery epitaphs, each piece represents the deceased individuals of the 1918 and 2020 pandemics or the collective toll of disease on humanity, as well as the transformation people undergo after death. Gesso as a material also carries an association with historical conventions of painting, referencing back to the wood panels and polychrome wood sculptures of the Medieval era while expanding into other dimensions. With a style that also reflects the Modernist art of the early 20th century, this project will explore parallels to our past and layer elements of art, nature, and narrative. Immortalizing the bark with photography and typographic elements, 1918/2020 seeks to memorialize the dead in a way that reflects the present. As an artwork, it will exist in a variety of forms that can fit in a gallery context as an installation or series of photographs, as well as the palm of your hand as a printed book. Adobe software such as Photoshop, Lightroom, and InDesign are integral components for producing digital images on the website and final publication. Several drafts of the book might be required before being ready for the public and donating copies to organizations like Denver Public Library and Fairmount Cemetery, and Blurb makes it easy to upload Adobe files and print photo books on demand. By listening to those touched by loss, the main goal behind this project is to honor their memory with respect and love for all humanity.

Proposal Example 2:

Gastrointestinal (GI) bacteria perform functions important to the health of the host organism. Therefore, disruptions to compositions of the GI microbial community may produce far-reaching long-term effects on the host organism. Per- and polyfluorinated alkyl substances (PFAS) are a class of organic pollutants known as "forever chemicals" used in many applications such as non-stick cooking

pans, water-resistant coatings, food wrappers, and fire-fighting foam. PFASs global occurrence, persistence in the environment, and bioaccumulation in living organisms have increased the concerns about its possible toxic effects on aquatic ecosystems. By examining the effect of exposure to PFAS the presented research will provide an understanding of PFAS-induced effects on the GI microbial communities, and its far-reaching physiological impact on the host organism. From October 2019 to March 2020, I gained valuable wet-lab research experience on the effect of PFAS exposure on the gut microbiome of fishes. My research consisted of DNA extractions on 180 gut tissue samples using specialized DNA extraction kits and troubleshooting the procedure when the level of DNA extracted per sample was lower than the necessary level for gene sequencing. After every DNA extraction, I reported complications and data to my supervisor thus enhancing my scientific communication skills which were then applied to articulating the methods conducted and our future directions at the 2020 RACAS. The goal by May 2021 is to publish the research findings. Thus, over the course of the summer I conducted scientific literature searches learning how to interpret and summarize scientific literature. Now that I have the lab skills and the background research skills my next goal is to expand my role to computational analysis with the goal of publishing our findings in May 2021. Now on the verge of analyzing and obtaining significant results for publication I fear that my opportunities to advance my research and statistical skills are very limited. My prior internal funding is dwindling fast. However, with [URCA] funding my research experience would continue as the grant would allow me to spend more time in the [Mentor] lab than in other employment. [My faculty mentor] has expertise in the bioinformatics and the QIIM 2 computational analysis program thus extra time and funding in the lab would allow me to allot more time to self-guided workshops for QIIME2. In-turn I would be working collaboratively with the supervisor thus expanding my computational skills overall allowing me to analyze and conclude accurate, unbiased, findings to publish.

Proposal Example 3:

My study will examine the relationship between biological motion detection, facial emotion discrimination and autistic-like traits in the typical adult population, with the objective to better understand how action detection and emotion discrimination relates to measures of individual differences. To test this, I plan to examine perceptual performance through the use of point-light displays containing clips of moving bodies and faces. These will be used to measure a participant's ability to identify the presence of biological motion or emotional content. The perception of biological motion refers to the ability to recognize a moving, animate creature when presented with minimal visual information. Point light displays are considered a useful research tool as they contain enough information to recognize actions (Dittrich, 1993) and emotions (Dittrich, Troscianko, Lea, & Morgan, 1996). The results of this task will be correlated with three questionnaires that measure aspects of personality including the BIS/BAS scale (Carver & White, 1994), the Five Factor Personality Questionnaire (Goldberg, 1999), and the Autism-Spectrum Quotient (AQ) (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001). This study is significant as there has been little conclusive research examining the relationship between biological motion perception and the presence of phenotypical traits associated with Autism Spectrum Disorder (ASD) within the general adult population, which the AQ provides. The ability to perceive biological motion is important as it is rich in subtle social cues necessary for interpreting one's social environment (van Boxtel, Peng, Su, and Lu, 2017). The phenomenon is specifically relevant to ASD, which is defined by impairments in social and communicative skills, many of which are believed to result from core impairments in face processing (Webb, Neuhaus, & Faja, 2016). Working on this project will contribute to my professional development by allowing me to design and carry out a unique research study from beginning to end that combines my interest in neurodevelopment and perception. In doing so, I will refine my knowledge of research methods, sharpen my communication skills and further develop my project management abilities, all of which are essential to my success as a future graduate student in clinical psychology.

Project Timeline:

In list format, please provide a timeline for your EURēCA! Fellowship, including all milestones, goals, and products described above. Begin with the award date and culminate with your required presentation at RaCAS.

Timeline Example 1:

October:
- Communicate with local cemeteries and funeral homes to build connections
- Contact Denver Public Library, begin reading and researching
- Photograph artwork
- Halloween and Day of the Dead

November:
- Continue researching and communicating with organizations
- Reach out to living descendants of the deceased (if possible)

December:
- Continue researching and communicating with people
- Compile stories, organize book
- Begin laying out website

January:
- Continue researching and communicating with people
- Craft images and written words for the website and book
- Experiment with rough drafts of the book

February:
- Continue researching and communicating with people
- Refine the content and details of the website and book

March:
- Prepare RACAS presentation
- Finalize website design
- Publish first draft of the book, make any necessary edits

April:
- Organize digital exhibition
- Donate final copies
- Present at RaCAS

Timeline Example 2: *Note that this was a 1-semester project*

October:
- Run crude PCR to determine ratio of bacterial DNA to fish DNA; select samples for analysis
- Practice purifying protein-free genomic DNA using Ampure Bead cleanup protocol
- Participate in QIME software training

November:
- Purify Genomic DNA using XP/SPRIselect Bead Cleanup protocol
- Attend QIME Workshop, complete QIME trainings
- Perform computational analysis

December:
- Write up final report
- Graduate

January-April
- Work with mentor to complete project write up and paper submission

- Return to CU Denver to present at RaCAS 2021

Timeline Example 3:

1. Experiment design and data collection – Fall semester 2020
    - Programming and debugging (underway)
    - Pilot data collection
    - Data collection of 75 participants online
    - Initial data analysis
2. Submit abstract for Vision Sciences Society (VSS) Conference – December 3rd, 2020
3. Data Analysis – Ongoing with data collection, finalized by April 2021
    - Planned analyses
    - Exploratory analyses
4. Write-up of findings – April 2021
5. Present at RaCas – April 2021
6. Attend VSS Conference – May 14-19, 2021
7. Defend thesis and graduate – April/May 2021

Budget Narrative

Specify the full amount being requested along with an itemized list of expenditures and justification. Explain how the budget items support the project and objectives.
- If you are requesting supplies, include a price estimate and source for that estimate.
- If you are requesting a conference, workshop, or travel grant, explain how the event will further your professional development as a scholar.

Example 1: Travel/ Conference Request of $500

- Conference Title registration: $290.70 USD.
- Registering for this conference will allow me to finally attend a conference full of theoretical and computational chemists from all around the world. Having previous conference plans being disrupted by COVID-19, I will finally be able to see the minds of great scientists at work, learn more about my field of research from those more knowledgeable, and have the opportunity to network.
- Left over stipend amount: $209.30 USD - Round trip to/from locations between on xyz dates: $400.00 USD
- The remaining $209.30 USD will be used to partially pay for the $400.00 USD round trip plane ticket.

Example 2: Supplies Request of $500

- Hahnemuhle Glossy Fine Art Paper 17x22 – 25 pk. (Price Estimate: $170)
- I will use 17x22 Hahnemuhle Glossy Fine Art Paper to make some of my final prints for my exhibition at Conference Name.
- Hahnemuhle FineArt Baryta Paper 235gsm 36 in x 39 ft/roll. (Price Estimate: $250.00).
- This is a roll of Hahnemuhle FineArt Paper that will assist me in printing on a larger scale other than 17x22.
- Other exhibition supplies TBD (Price Estimate: $80)

Example 3: Supplies Request of $500

- P-S6 Ribosomal Protein (S235/236) Rabbit Ab (antibody) - $300 (Source: CelSignaling Product #: 2211L)
- Biotin-SP-conjugated AfinniPure Goat Anti- Rabbit IgG (H+L) secondary antibody - $200 (Source: Jackson ImmunoResearch Product #: 111-065-003)
- These budget items support the project and objectives because they will allow me to perform immunohistochemistry in order to gather data on whether there are age differences in rats who experience a stressful event and display social buffering or social conditioned fear.

Example 4: Supplies Request of $500

- Funds will be used to attenuate rat costs (in conjunction with PI grant support) such as purchase price and shipment fees.
- Sprague-Dawley rats are approximately $50 a piece for adolescent age (PND 41-43), and approximately $65-$100 each for adult age (PND 75-90) depending on the sex. Rats are the models for my A Social Behavior Comparison of Fear and Buffering of Adolescent and Adult Rats

  Pricing Resource: https://www.envigo.com/model/hsd-sprague-dawley-sd

---