

SAMUEL PERKINS, BS (expected May 2024)**GPA: 3.89**

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Education

BS, Biological Engineering <i>Utah State University, Logan, UT</i>	May 2024
Minor, Spanish <i>Utah State University, Logan, UT</i>	May 2024

Academic Experience**Laboratory Projects (* = team project)***Department of Biological Engineering, Utah State University, Logan, UT*

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| *Optimized Modeling for Quercetin Diffusion through Pluronics F127 and F68 | 2023 |
| <ul style="list-style-type: none"> • Tested diffusion rates of different % w/w concentrations of Pluronics. • Used GraphPad Prism 10 for fitting and modeling data and ImageJ software for collecting data. • Tested lower critical solution temperature of Pluronics (LCST) • Future publishing of article of experiment by Anagha Wankhade and Dr. David W. Britt. | |
| *Flaviolin Production from Expression of <i>stts</i> Gene in <i>Escherichia coli</i> | 2023 |
| <ul style="list-style-type: none"> • Produced type III polyketide synthase from transformation of <i>stts</i> gene into <i>E. coli</i> BL21, using metabolic engineering and synthetic biology techniques. • Heterogenous gene cloning techniques including PCR, extraction, purification, transformation, ligation to vectors PET28a and digestion. • HPLC and SDS-PAGE analysis to characterize products. | |
| Heat and Water Exchange Model within the Human Airway during Cold Ambient Temperatures Using CFD and Finite Difference Methods | 2023 |
| <ul style="list-style-type: none"> • Created a working model of transient three-dimensional system of heat transfer in the lungs using Python. • Output data comparable to published works in analyzing the effects of cold air on the lumen airway in the human lung. | |
| *Subcritical Water Hydrolysis as a Solution for Animal Component-Free Cellular Agriculture | 2022-2023 |
| <ul style="list-style-type: none"> • Parr Pressure Vessel use for subcritical water hydrolysis (SWH). • Tested characterization of chlorella vulgaris hydrolysates under varying temperature and retention time. • Bradford, HPLC, SPV, DNS assays to characterize SWH products. | |
| *Oxytetracycline Production from Bioreactor Processes | 2022 |
| <ul style="list-style-type: none"> • Compared bioreactor fermentation production of oxytetracycline using cell factories (<i>E. coli</i>) with shaker fermentation. • Used liquid-liquid extraction for downstream processing, bioassay, high-performance liquid chromatography (HPLC), UV spectra for characterization. | |
| *Biologically Engineering Nutrient-rich Cheese | 2023 |
| <ul style="list-style-type: none"> • Developed engineering design model to reduce cholesterol, increase iron, folate production, and lysine synthesis by genetically modifying bacteria plasmid vector in <i>Lactococcus lactis</i>. • Created bio-brick for iGEM database as part BBa_J73137 using T7 promoter (https://parts.igem.org/Catalog). | |
| *Measuring Jump Scare Tolerance via EEG Brain Wave Analysis | 2023 |
| <ul style="list-style-type: none"> • Used Fourier transform to standardize brain wave frequencies. • Designed an experiment protocol and manuscript to test hypothesis. • Completed study using a pool of volunteers. | |

Publications

In progress for peer review

Jacob D Watkins, Elise Barton, Marshall Burrows, Lukas Keller, Bradley Lawson, Sam Perkins, Emery Wheeler, Ronald C. Sims. Optimization of subcritical water hydrolysis of microalgae biomass for clean meat production. *Frontiers in Sustainable Food Systems*. 2024, 8, x. <https://doi.org/10.3389/xxxxx>
<https://www.frontiersin.org/journals/sustainable-food-systems> - Expected resubmission May 2024

Conference Oral Presentation and Conference Poster

Marshall Burrows, Lukas Keller, Bradley Lawson, Sam Perkins, Emery Wheeler. Optimization of Subcritical Water Hydrolysis of Microalgae Biomass for Clean Meat Production. *Intermountain Biological Engineering Conference (iBEC)*. November 2023

Awards

Runner up Val R. Christensen Award <i>Robins Awards, Utah State University</i>	2023
All-American Athlete, USAR <i>Intercollegiate National Racquetball Championship, Ohio</i>	2023
Sterling Scholar Award <i>Music, Weber High School</i>	2017

Community and Institutional Service, Leadership

Rotary International

President of Utah State Rotaract Chapter	2022-2023
<ul style="list-style-type: none"> Weekly to monthly community service projects, planning, and leadership 	
International Service, <i>Queretaro, Mexico</i>	May 2023
<ul style="list-style-type: none"> Hosted and planned a three-day science camp for a underserved youth program (ages 4 – 14) 	
Treasurer	2021-2022
<ul style="list-style-type: none"> Balanced finances, budgeted, held fundraisers, account maintenance and standing 	
International Service, <i>Naranjitos, Mexico</i>	March, 2022
<ul style="list-style-type: none"> Built a concrete sports court for local middle/high school 	

Utah State Racquetball Club Sports

President	2023-2024
<ul style="list-style-type: none"> Organized tournaments and team travel to nationally sanctioned tournaments. Served as interim coach since March 2023. USU Club Sports Representative liaison. 	
Racquetball Clinic for Youth Service Project	March, 2023
<ul style="list-style-type: none"> Hosted a free clinic to teach the local community and their children the sport of racquetball 	
1 st Officer	2021-2023
<ul style="list-style-type: none"> Planned fundraisers, recruited members, and attended meetings for club 	

Foreign Spanish Speaking Volunteer

<i>Northern Argentina</i>	2018-2020
<ul style="list-style-type: none"> Organized and served on committees, service projects, youth activities, and daily service acts. Leadership, public speaking, and human relations skills. 	