



UKUČA

April 12, 2024

Dear Friends,

I am excited to welcome you to the 23rd annual Celebration of Undergraduate Research



Acknowledgements

Heidi Kraus, Shonn Colbrunn, and Maricela Mireles, Celebration Co-directors
Margaret Kuzak and Events and Conferences Staff
Laura Clarke, Mike Culver, and Physical Plant Staff
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Leo Herzog, Deborah DuMez, and Computing and Information Technology
Kate Folkert, Abstract Book Graphic Designer
Frost Research Center

This book, as well as a sampling of posters from the Celebration event, can be viewed on Hope's Digital Commons Repository on the Van Wylen Library website (digitalcommons.hope.edu) beginning in May.

For projects funded in part or whole by the National Science Foundation: Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Numbers next to presenter names in this program reference the project number on the floor of the event.

Listing of Projects by Department or Program

Pre-en, a ion Tī, le

S, den, Pre-en, er

Biochemistry & Molecular Biology

Men, or

Dr. Leah Chase, Dr. Kristin Dittenhafer-Reed

Erlg^ - Q k^ neZnl ra^ ZrlbnZg] ikZ \dlg` h_ ra^` cystine/glutamate transporter, System xc-	Anna Koppin	87
LC-MS/MS for proteomic analysis of post-translational f h] bZ\Zthgl hg`q<M	Connor Bricco	98
N[h] nbgZthg h_ q<MBF i ZrhgMa^ I hnhgÖLrZ] bhn% Mkgho^kKZrn%Zg] Eh\ZdsZthg	Sofa Rosenberger	109
Bgo^l rñ Zthg` ra^ lgnkl ^\thg h_ hg^ \Zk hg f ^rZ] hñ f` and mitochondrial genome maintenance	Taylor Laurin	120
Determining the nature of the interaction of mitochondrial DNA with nucleoid proteins involved in one carbon metabolism.	MacKenzie Luurtsema	121

Biology

Men, or

Dr. Leah Chase, Dr. Kelly Ronald, Dr. Jennifer Blake-Mahmud, Dr. Maria Burnatowska-Hledin

> ^\rh_ = ^zr^] A<: >qi hnk^ hgZKZnf h] ^eh_ ; b hZk= Bhd] ^k Understanding the role of serine 26 phosphorylation changes in i ^hqd] ^E ^] lZn] ikZ \dlg` h_ lrlmf` q^&hna^^^ef` af [kZg^	Eden Comer, Natalie Olander	74
>qi dk^Ahi ^Lnf f ^k<Zf i l3 f Zshg` : glf Ze: [bbbl Ma^@g^rñ Obpi hgnh_ >gobhgf ^gnZL^q= ^mkf lgZthg` lgI Zgn3KG: >qnZ\thg h_ Lrki ^] F Zi eI	Katherine Lane	65
= h^l lg^k^Zi^] ^ ^g^rñ f ZnkZeZ ^\nna^ lrk^ll k^li hgl ^ in related organisms?	Hannah Sturgeon, Alyssa Archer	63
AZi r< aZf r4Ma^> ^\rh_ i A hgL^qnZeOl : l^qnZeK^i kh] n^thg	Janaa Ward	75
Lh\ZeL^q= ^mkf lgZthg3P aZm k^ BhElf bt8	Steven Awad, Madeline Kenney	76
>gobhgf ^gnZg] l^qnZe^qi k^llhg3Ahk^ hg^&g] n^] l^q` change in sexually plastic trees	Amanda Darner, Sam Haakenson, Alyssa Fusco, Madison Smith	85
Bgo^l rñ Zthg` : n] bhkr Zg] ObnZeL^Zi hgZdm lg^Ahn l ^?lg^a^l	Molly Prom, Kayleigh Harrell, Hannah Dehaan, Mackenzie Dole	86
F i bZthgl h_ Bbg Hqd] ^GZghi Zrh e^>qi hnk^` hg^ra^: n] bhkr I arl bhd^ r Zg] Bbg; bZ\^nf neZthg` lg^Ahn l ^Li Zkdp l`	Colin Kalkman, Samantha Weaver, Michael LaPorte, Arsh Mir, Jillian Hickok	107
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Biology continued

: k'ra'k'l'q&Z'] b'kg'al'lg'lnk'] gnk'gh'

Communication

Men or

Dr. Austin Beattie

: kniol 'Ma^: krlr6 Zg' Bp ^L'i ZkZrn] 8

Simon Awad, Timothy Ramos,
Antonio Popp, Ja'Kaurie Kirkland

28

Ódkrg` hkAnkrg` 80B ^k^i rthgl h_?dkZrhn1`

History

Mathematics

Men, or
Dr. Paul Pearson

Listing of Projects by Department or Program

Pre en, a ion T i le	S den Pre en er	Projec N mber on he Floor of he E en
Neuroscience continued		
@kZhm] ^Zg] ^ kn] ^l rhpZkl hra^kl 3F i Zrhhg` emotion-regulation and the parasympathetic nervous system	Nhi Hoang, Charis Snyder, Kendahl Miller, Parker Friend, Grace Sarafa, Alexander Mathew, Jacob Bergstrom, Wyatt Collier, Jessica Estabrook, Joseph Gillengerten, Tyler Kennedy, Ana Wong	123
F h] ^dg`] hi Zf lg^k b` dhl lg`ra^s^ [kZBl a heZrhrk lrl rnf` GZghf ^\aZgbZe\ aZkZrnksZrhg`h_`s^ [kZBl a heZrhrk` epithelium following damage and recovery.	Lexus Putt Ander Ciesielski	101 112
> ^\rh`h_ Znrn`ari hqb` ^qi hlnk` hg`ra` heZrhrk lrl rnf` ` h_ Z] neis^ [kZBl a	Skylar DeWitt	91
Nursing		
Men or Dr. Anita Esquerra-Zwiers		
F r F hra^kDF lbd` hkF bab Zg Bg Zgh`= ZiP^ [&Zl ^] ` : i i dZrhg`h`nl @kni `?^^ [Zld	Delaney Wesolek	111
Philosophy		
Men or Dr. Kate Finley		
K`d`b`nl l\kni ndl bn3`rhh` r%f ^Zlg` & Zdlg` %Zg] li hbnZe` p^ed^lg` Zf hg` i Zrhh Zrhp bal b gfb` Zgn`qi ^kbg`^l` p`ha`ra^ < aklnZg`B`Zf b`%kCp`ba` Zral	Erin Moran	51
Physics		
Men or Dr. Belen Monteagudo, Dr. Zachary Williams, Mr. Andrew Bunnell, Dr. Paul DeYoung, Dr. Kyuil Cho, Dr. Peter Gonthier		
< aZkZrnksZrhg`Zg] Ml rhg` h_ Lh F l`_hkZG^qnt`g`^kZrhg` Neutron Detector	Bishop Carl	70
Bgo`l`rh`Zrhg`h_`< hgo`^`rhg`< ^ed` OlZMng`Zrn] ` Eigenmode Decomposition	Gillian Donley	71
F ZrnkZe< aZkZrnksZrhg`_hkBg] nl rhZeMhg`?hf` I kh`^l l` &^`Zr`l`rk`g``ma`ng`^rhg`h_`22%) R	Nathaniel Jobson, Jacob Walther, Justin Rink, Wil Pinkerton Nathaniel Jobson	81 82

Physics continued

= $\int_{-\infty}^{\infty} \delta(x) dx = 1$
Elj nb *2? Lög] Zk]

Psychology continued

Individual Differences

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Katherine Yakes **36**

Evolutionary Psychology
on Partner Choice

Jennifer Almquist, Neva Brown **26**

Sociology & Social Work

Men or

Dr. Aaron Franzen, Dr. Liz Sharda, Dr. Rodrigo Serrao

> ^\mh_>f i Zrab<hg^\^kg%Lh\ZeLni i hkr%A^Zaa%Zgl ; nkghnm
hg'Ngj ^k kZ] nZmI k^&^ZaaZgl 'Gnkkg` Lm] ^gmÜrk'11

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Presenter

Location

23rd Annual A. Paul and Carol C. Schaap Celebration of Undergraduate Research and Creative Activity

Poster and Presentation Map



NATURAL AND APPLIED SCIENCES



SOCIAL SCIENCES



ARTS AND HUMANITIES



GLOBAL HEALTH

- | | |
|-------------------------------|--|
| 1. Kinesiology | 12. Global Health |
| 2. Psychology | 13. Geological & Environmental Science |
| 3. Sociology & Social Work | 14. Biology |
| 4. Education | 15. Biochemistry & Molecular Biology |
| 5. Political Science | 16. Chemistry |
| 6. Women's & Gender Studies | 17. Nursing |
| 7. Communication | 18. Neuroscience |
| 8. World Languages & Cultures | 19. Engineering |
| 9. Music | 20. Physics |
| 10. History | 21. Computer Science |
| 11. Philosophy | 22. Math |



Abstract graphic design featuring the word "CURCA" repeated in various colors (blue, green, yellow, pink, red) and orientations. The text is overlaid on a background of vertical and horizontal lines in matching colors. The top portion of the image shows a grey, textured surface, possibly concrete, which transitions into a white background.



Abstract graphic design featuring the word "CURCA" repeated in various colors (pink, blue, yellow, green) and orientations. The text is overlaid on a background of vertical and horizontal lines in matching colors. The bottom portion of the image shows a grey, textured surface, possibly concrete, which transitions into a white background.