

RESEARCH EXPERIENCES FOR UNDERGRADUATE STATISTICS MAJORS

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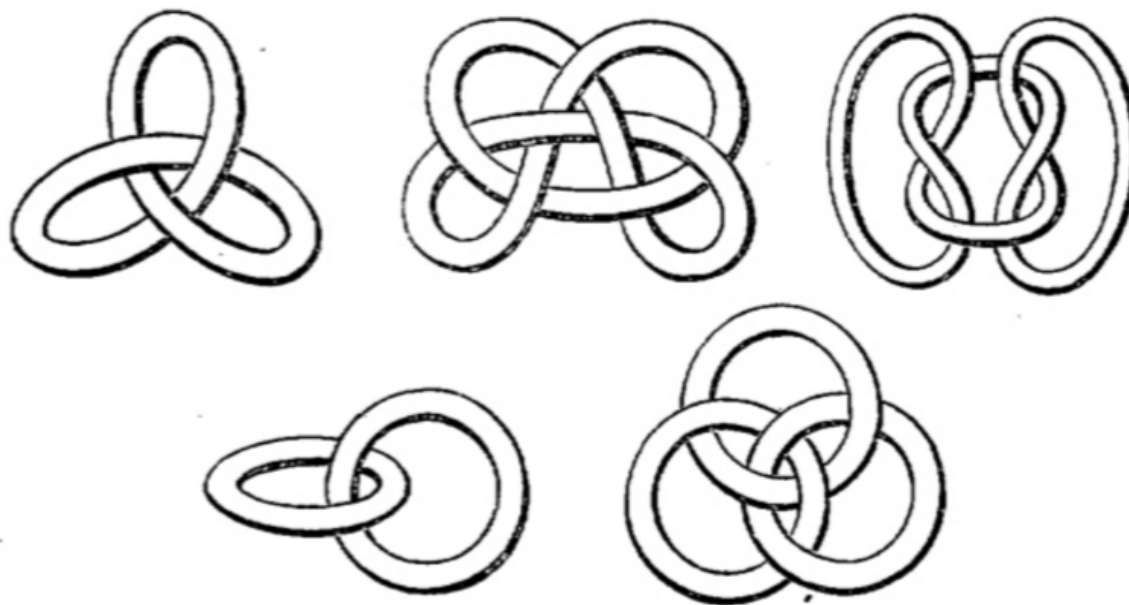
Northern Kentucky University
Department of Mathematics & Statistics



Overview

- A bit of my own history
- Undergraduate research in statistics at NKU
- Why it matters (data)
- CAUSE opportunities
- Discussion

Knot Theory



What does this have to do with statistics???

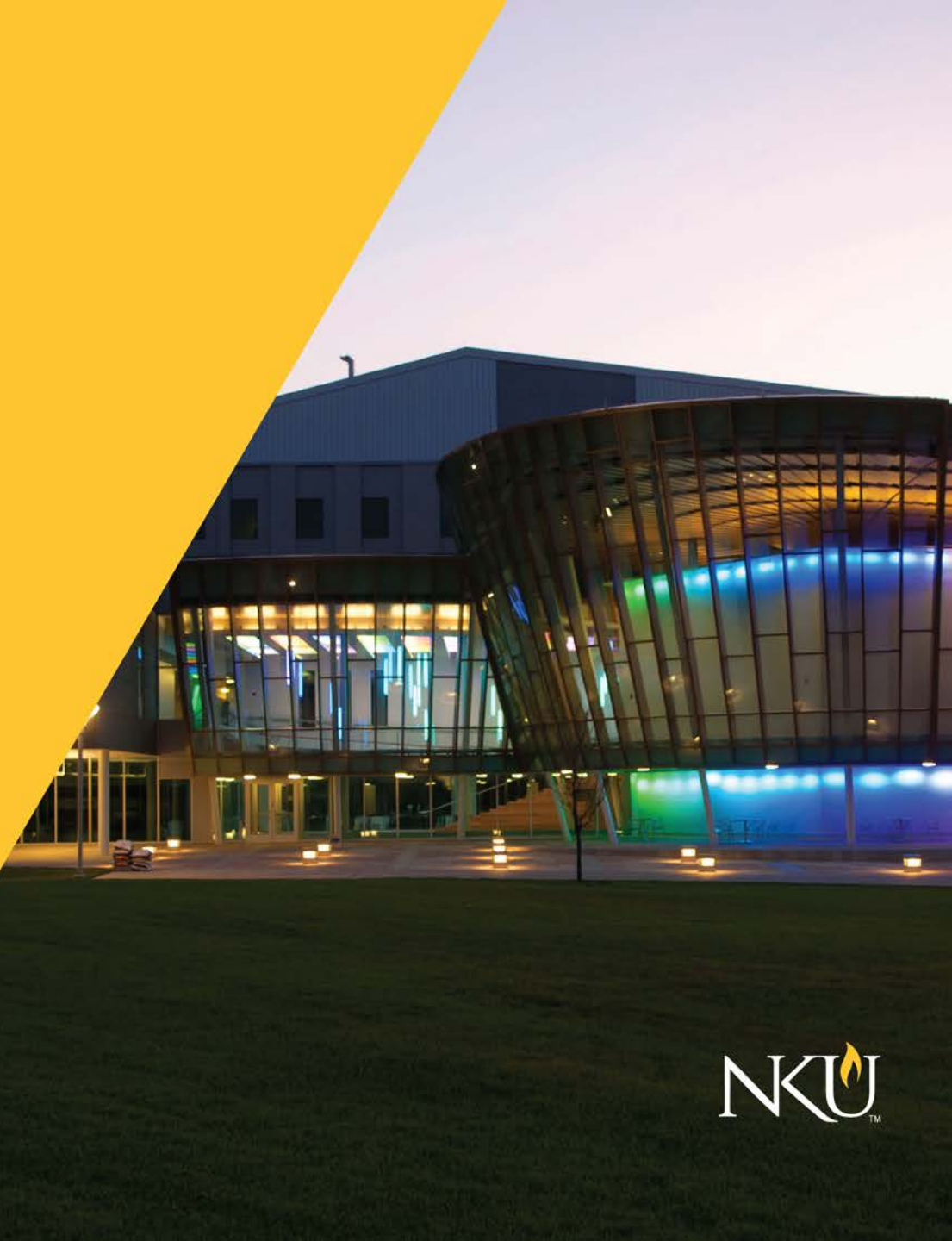
Undergraduate Research Opportunities



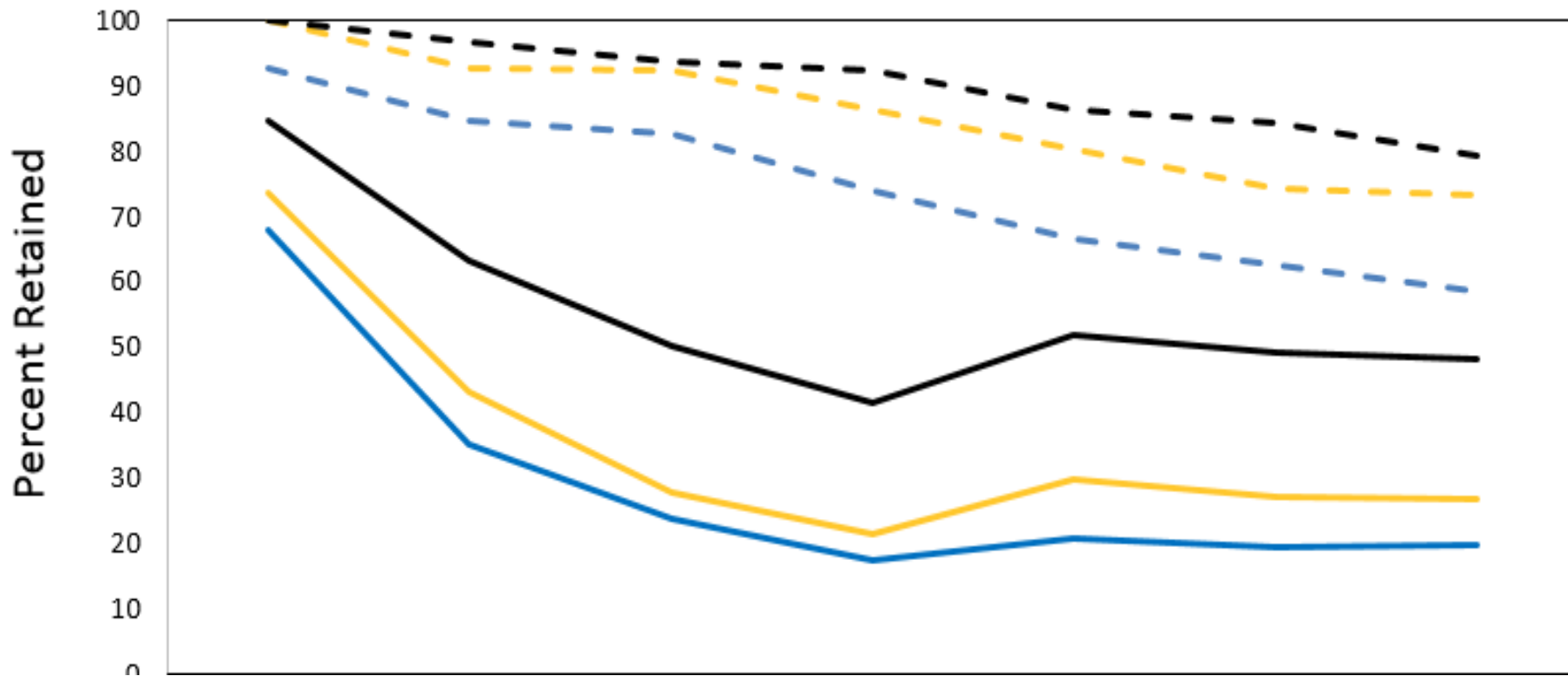
UR Opportunities at NKU

- UR-STEM Program (NSF funded)
- Student-faculty collaborative grants / CINSAM
- Statistics in Sports
(<http://www.nku.edu/~nolanj1/SIS.htm>)
- [SAS analytics competition](#)
- UR Presentations – “Celebration”, KYMAA, Posters, etc.
- Burkardt Consulting Center

NKU DATA



Retention Cohorts 2009-2014



	1st Spring	2nd Fall	2nd Spring	3rd Fall	3rd Spring	4th Fall	4th Spring
UR-STEM (Retained Major)	92.9	84.7	82.7	74.1	66.7	62.7	58.8
UR-STEM (Retained STEM)	100.0	92.9	92.6	86.4	80.4	74.5	73.5
UR-STEM (Retained NKU)	100.0	96.9	93.8	92.6	86.3	84.3	79.4
Comparison (Retained Major)	68.0	35.2	24.0	17.6	20.8	19.5	20.0
Comparison (Retained STEM)	73.6	43.2	28.0	21.6	29.9	27.3	26.7
Comparison (Retained NKU)	84.8	63.2	50.4	41.6	51.9	49.4	48.3

BCC Student Consultant Survey (Graduates)

- 14 Respondents (2002-2014)
- 5 have attended graduate school
- 12 list experience in resume
- 11 have discussed the experience in an interview
 - For 7 the prospective employer brought it up
 - 8 employers indicated they valued the experience

BCC Student Consultant Survey (Graduates)

- It was essentially equivalent to 4 months of job experience.
- I was able to talk about cross tabulation and using SPSS software - both of which were key to the job I was hired for.
- It gave me real life experiences with work and data other than information from a textbook
- Children's only hires at the Master's level or with 3 years of experience - neither of which I had or have. But my experience was worthy enough of a position.
- It really helped with the process of helping clients at Medpace and to understand the different steps to be taken.
- Undergraduate research is key to making you stand out to prospective graduate schools and employers.

NKU Celebration

- University-wide presentations (126 response)
- Common reasons for student participation:
 - Professorial encouragement (55%)
 - Improve Resume (57%)
- Survey feedback (%A or SA)
 - Would do it again (85%)
 - See future benefit (84%)
 - Faculty mentor of particular importance (91%)
- Plans to publish
 - Yes (19%)
 - Maybe (37%)

NKU Celebration

- Counseling/Social Work: I learned that I can successfully conduct a survey and gather the results in a meaningful way.
- Arts/Humanities: I learned that my statistical skills are in need of some refinement.
- Social Sciences/Business: I learned that I actually enjoyed participating in research.
- Counseling/Social Work: I have always been intimidated by research, this experience has helped me see that I am capable of more than I give myself credit for.

NKU Celebration

- Counseling/Social Work: I learned that I do not need to feel intimidated by conducting research and analyzing the data. I am capable of designing a research study, writing about my findings, and explaining my work to others.
- Social Science/Business: I realized that the unity and celebration of students as seen in the Celebration Event is something important to me that I want to encourage in the future as a graduating senior looking to work in higher education.

NKU Celebration

- Biology: I learned that I am very comfortable in presenting my research to a wide audience variety where I can break up my project in laymen's terms to non-science majors and then be comfortable in going into more details when talking to professors in the field of area I researched on.
- STEM: It's way easier to give a presentation/ speech when you conducted the experiment personally and also because you were genuinely interested in it.
- Chemistry: That I have a skill for turning complex information into easily digestible simple information that can be grasped by those outside of my discipline.

OPPORTUNITIES SUPPORTED BY CAUSE



Undergraduate Class Project Competition (USCLAP)

- Focus: Class projects conducted by undergraduate students within an introductory or intermediate applied statistics course.
- Submission Deadline: May 31 of each year (projects should have been completed the previous 365 day interval)
- Submission consists of a paper of no more than 20 pages.

Undergraduate Research Project Competition (USRESP)

- Focus: Research projects conducted outside of a class (e.g. independent summer project, honor's project, senior capstone).
- Submission Deadline: May 31 of each year (projects should have been completed within the previous 365 day interval)
- Submission consists of a 3-page paper (with optional appendix).

Electronic Undergraduate Statistics Research Conference

- Established in 2015

<https://www.causeweb.org/usproc/eusrc>

- Next conference will be Friday October 21, 2016
- An excellent opportunity to involve students on campus in a mini-conference format (10 participants at NKU in 2015).

Thank You!

Open Discussion

