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### Summertime Often Means Undergrad Research

Jasmine Babineaux

Allison Gerk

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Jasmine Babineaux '19 (above) and Allison Gerk '20 talk about their exciting 2018 summer research projects.

## Summertime Often Means Undergrad Research

*Undergraduate research was not common 20 or 30 years ago. Today, it is. Studies show undergrad research offers students numerous professional and personal benefits, such as the chance to learn research techniques and problem-solving skills, to explore career directions, and to expand self-confidence and relationship-building skills.*

*To help add to many opportunities for **collaborative undergraduate research** on campus, St. Norbert debuted the Summer Undergraduate Research Fellowship, or SURF, last summer. Six students received the fellowship, aimed at those who came from underprivileged or underrepresented groups.*

*Here, two inaugural SURF recipients discuss their research.*

### Jasmine Babineaux '19

My summer research project through the SURF program focused on Black American women in leadership positions in higher education. My objective was to discover and account for the experiences of Black American women working in higher education, especially those working in student affairs. My long-standing interest in the history of higher education, especially the history of Historically Black Colleges & Universities (HBCUs) versus Predominately White Institutions (PWIs), prompted my initial attention to this topic, along with my own aspirations to join the ranks of Black American women leaders in higher education.

During the summer, I began examining books, journal articles and dissertations that have explored the topic of Black American women leaders in higher education. I was surprised by the relative dearth of materials. Presently, leadership as a field of academic study is dominated by a focus on white males; it is their experiences, perceptions and ideals for leadership that tend to be emphasized. The leadership stories of Black American women in higher education remain largely unrecorded and ignored; evidence exists that suggests their experiences have been historically underestimated and underappreciated. This creates a significant and meaningful gap in our understanding of leadership and the ability to teach and enhance it.

The literature suggests that there have been many Black American women in higher education who have paved the way for presidents of colleges or universities, directors, and mid-level administrators. The full history of these leaders has not been given the attention that is its due. As I have analyzed and studied the literature available on Black American women in leadership positions in higher education, I have found there is a high degree of sacrifice, personally and professionally, when working in this specific field. The Black American women leaders who have served others – students, colleagues, members of their professional and home communities – have much to teach those of us who are early in our careers in higher education leadership.

I am continuing my research as an independent study with my mentor, Dr. Lucy Arendt. My experience as a SURF fellow would not have been as fruitful without her guidance and inspiration. I'm also grateful that the SURF program challenged us to think like professionals. From giving elevator pitches about our research to conducting efficient and engaging presentations, the SURF faculty gave us a space to grow professionally and personally.



### Campus Hopping Every Summer

St. Norbert is no ghost town come summer. On the contrary, it's quite a bustling place. Here are a few of the things that happen once the students move out.

- SNC hosts 10 to 12 **camp**s and **conferences**, ranging from one or two days to five weeks.
- SNC itself sponsors 12 to 15 programs, from **NextStage** theatre to basketball camps to the **Summer Academy of Medicine**.
- About 100 **Green Bay Packers** move into VMC from late July to mid-August for training camp. (They have to share rooms, but they do get fancy mattresses and air conditioners.)
- Four sessions of **summer classes** are held, starting right after Commencement.

### Also in This Issue

This article first appeared in the March 2018 issue of Parents of St. Norbert College. Other features in this edition included:

**Commencement By the Numbers**

**SNC Employee/Parent/Townie Dishes on 50 years of College Life**

**Summertime Often Means Undergrad Research**

**Parents Say Service Work Helps Students, Too**

**High-Impact Teaching Drives Student Success**

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## Allison Gerk '20

This past summer, I had the pleasure of participating in the Summer Undergraduate Research Forum in Mathematics. Under the direction of Dr. Terry Jo Leiterman, I was able to understand research in the field of applied mathematics in biology, specifically in population dynamics. Together we studied columnaris disease, a fatal disease that affects most freshwater fish, and the population dynamics of infected fish.

*Flavobacterium columnare*, or *F. columnare*, is a bacterial pathogen that forms biofilms on the surface of freshwater fish. As the biofilm grows, the resulting infection causes a fatal disease to fish known as columnaris. *F. columnare* grows not only on the surface of healthy fish, but also on deceased fish. During this biofilm growth, *F. columnare* sheds from the host fish and enters the aquatic ecosystem where it resides, remaining viable, until it infects another fish. Consequently, shedding is a threat to the healthy fish population. The disease has become a threat to not only the natural freshwater ecosystems, but also to fish-farming communities. Farmers are struggling to harvest healthy fish and to rid the bacteria from their communities.

During the summer, we explored the interconnected relationship between healthy fish, infected fish and removed fish as a result of the shedding of *F. columnare* due to biofilm growth. Using the software Mathematica, we wrote our own code to perform a numerical case study. These results gave us information on when farmers could vaccinate, harvest or treat the fish.

After seven weeks of investigation, I attended the 2018 MAA Mathfest in Denver, where I participated in lectures from renowned mathematicians across the nation. Hearing their work and passion for mathematics was nothing short of inspiring. In addition, I disseminated our work at the conference and was humbled to receive the Janet L. Andersen Award for Outstanding Student Exposition or Research in Mathematical or Computational Biology presented by BioSIGMAA.

This spring semester, I will be participating in an independent study to continue my research on this topic with Dr. David Hunnicutt, a microbiology professor who studies *F. columnare*. We'll be taking a deeper look at the transmission rate variable and the effects of vaccination and harvesting/restock, among other things.

I'm so grateful I was given the chance to participate in the SURF program. Thanks to that experience, I am developing an immense passion for scientific research. I am fascinated by the process of how a lab operates, and how failure and determination both contribute to success. My dream upon finishing my undergraduate degree is to move into a graduate program in biomathematics/mathematical oncology. I believe linking biology and math is one key to growth in cancer research.

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