2019 St. Bonaventure University Summer Research Program for High School Students (SBU-SRPHS)

**Application Deadline:** Friday, April 12, 2019

**Announcement of Acceptance:** Friday, April 26, 2019

**Program Dates:** Monday, July 15 – Friday, July 26, 2019 (2 weeks)
Approximately 9AM-4PM, but can be flexible

One-on-one research opportunities with SBU faculty
Different STEM career talks
Celebrate project completion with families and friends

*A special thanks to our co-sponsors:*

The Wood Family  
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Program Description

Are you a high school junior or sophomore interested in the natural sciences and wanting to go to college? Then consider a research experience by working side by side with St. Bonaventure University faculty on an authentic research project.

Your research experience will take place in research laboratories on the SBU campus. A faculty mentor will work alongside with you on a cutting-edge science topic. Scientists from different natural science fields will come to meet you, share their insights in your future career and give you advice on how to prepare for your future success.

You will conclude your research experience by presenting your own project in front of your families and friends, as well as SBU community. Here you will hone your scientific communication skill and make your family proud. Throughout the program you will have the opportunity to bond with peers who have the same interest in science and passionate scientists who you interact with.

Program Eligibility

Applicants must be completing high school sophomore or junior year in summer 2019.

Application Submission

To apply, prepare the following:

1. A copy of your high school transcript.
2. A one-page personal statement describing why you want to apply to this program.
3. Rank your top three areas of interest from any of the followings:
   - Biology including Biochemistry, Bioinformatics, Developmental Biology, Microbiology, Molecular Genetics
   - Chemistry including Environmental Chemistry, Organic Synthesis, Chemistry Engineering

See a list of faculty research descriptions are on the next page.

If you need housing accommodation, please state so in your application. This is not a residential program, but there are a few options for students in need to consider.

Fee: $100/participant is due upon confirmation of acceptance by April 26th, 2019.

Please send your application materials electronically to:

Dr. Xiao-Ning Zhang
Professor of Biology, Director of Biochemistry Program
Email: xzhang@sbu.edu
Phone: (716) 375-2485

See program highlights from past years at www.sbu.edu/hsstudentresearch.
Faculty Research Descriptions:

Biology

Dr. Sean Ryan: Wastewater disinfection byproducts that enter into aquatic ecosystems could affect normal embryonic development in zebrafish. This project will explore potential developmental defects using bioinformatic and molecular genetic approaches.

Dr. Johanna Schwingel: Microbial communities work together to foster helpful (ex. decomposition and health) or harmful (ex. infection and corrosion) outcomes. This project will examine bacterial communities using microbiology, bioinformatics, and molecular genetics.

Dr. Xiao-Ning Zhang: Reproductive success is key to the continuation of any living species. This project will investigate genes that contribute to pollen fertility using bioinformatics, biochemistry and molecular genetics approaches.

Chemistry

Dr. Donna Brestensky: This project will focus on the synthesis of dienes derived from renewable (“green”) resources and the analysis of the dienes using NMR, IR, and GC-MS instruments. Students will use the dienes to formulate new variations of the Diels-Alder Reaction.

Dr. Ashley Evanoski-Cole: Air quality is important for human health and reducing the impacts from climate change. This project will involve environmental sample collection and laboratory analysis to better characterize the chemical composition of air pollutants.

Dr. Scott Simpson: I use density functional theory (DFT) calculations to study the interaction between molecules and surfaces for applications in catalysis. These calculations require a supercomputer to run and divulge important information about chemistry!

Engineering:

Mr. Tae Cooke: Do you like Arduino microcontrollers, LED lights and electric motors? Or do you want to learn more about these and other low-voltage electronics? Learn or advance your understanding of these devices and leave with a project of your own choosing & design!