**Quantitative Biology Undergraduate Summer Research Program**

Application Deadline: March 1, 2019  
Program Dates\*: June 24, 2019 – August 16, 2019

The Quantitative Biology Undergraduate Summer Research Program offers summer research fellowships to undergraduates. This program allows undergraduate students majoring in biology, engineering, mathematics, statistics, or physics to participate in hands-on laboratory or computational research that applies mathematical concepts and methodology to understanding mechanisms in biology. If selected, leadership will match you with a faculty mentor.

Participants will be encouraged to attend activities such as, faculty research presentations; day trip to a local museum or Argonne National Laboratory; a presentation on applying to graduate school; and other cohort outings.

This program is supported by the NSF-Simons Center for Quantitative Biology and the Northwestern Research Training Grant in Quantitative Biological Modeling.

**Stipend**

Participants in the program receive a taxable stipend of approximately $4,000.

**Eligibility**  
To be considered for this program, applicants must currently be freshmen, sophomores, or juniors with demonstrated interests in the mathematical biology and/or developmental biology.

**Expectations**

* Participants are expected to spend 100% of their summer break working in a participating\* faculty member’s research group for 8-weeks between end of June 24 – August 16, 2019. (Dates can be flexible to accommodate your university/college’s spring term/quarter end date and fall term/quarter start date.)
* Participants must agree not to take on any other paid work or research grants for any part of the eight-week period, and must not be enrolled in courses for any part of that period.
* Participants must give a 15-minute presentation with slides at the end of the program to the Center directors, investigators, scholars and personnel.

**Application Materials**  
To apply, students are required to submit the following materials via email to Tiffany Leighton Ozmina, [tiffany.ozmina@northwestern.edu](mailto:tiffany.ozmina@northwestern.edu) by March 1, 2019.

* A completed application form
* A letter of recommendation from a faculty member
* Include a one-page, single-sided proposal describing the type of research in which you would most like to conduct if selected for this program. Information about available laboratories and research projects can be found on the program websites:  
  [www.quantitativebiology.northwestern.edu](http://www.quantitativebiology.northwestern.edu/)  
  [www.qbiomath.northwestern.edu](http://www.qbiomath.northwestern.edu/)  
  Use a standard 11-point font. Include title of project at top of the page, centered. One additional page is allowed for including figures and/or references.

**\* Participating Faculty Members**

[**Danny Abrams**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/abrams-daniel.html)

Associate Professor, Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science

[**Ravi Allada**](http://www.neurobiology.northwestern.edu/people/core-faculty/ravi-allada.html)

Chair and Professor, Neurobiology; Weinberg College of Arts and Sciences; Project 3 Leader, NSF-Simons Center for Quantitative Biology

#### [**Luis Amaral**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/amaral-luis-a-nunes.html)

Professor of Chemical and Biological Engineering, McCormick School of Engineering; Professor of Molecular Biosciences and Physics & Astronomy, Weinberg College of Arts and Sciences; Professor of Medicine, Feinberg School of Medicine; Investigator, NSF-Simons Center for Quantitative Biology

#### [**Erik Andersen**](http://www.molbiosci.northwestern.edu/people/core-faculty/erik-andersen.html)

Assistant Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Project 2 Leader, NSF-Simons Center for Quantitative Biology

#### [**Antonio Auffinger**](http://www.math.northwestern.edu/~auffing/)

Associate Professor of Mathematics, Weinberg College of Arts and Sciences; Investigator, NSF-Simons Center for Quantitative Biology

#### [**Neda Bagheri**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/bagheri-neda.html)

Assistant Professor of Chemical and Biological Engineering, McCormick School of Engineering and Applied Science; Project 2 Leader, NSF-Simons Center for Quantitative Biology

[**Rosemary Braun**](http://www.feinberg.northwestern.edu/faculty-profiles/az/profile.html?xid=23119)

Assistant Professor of Preventive Medicine, Feinberg School of Medicine; Project 3 Leader, NSF-Simons Center for Quantitative Biology

[**Richard Carthew**](http://www.ibis.northwestern.edu/people/faculty/richard-carthew.html)

Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Director and Project 4 Leader, NSF-Simons Center for Quantitative Biology

[**Dan Dombeck**](http://www.neurobiology.northwestern.edu/people/core-faculty/daniel-dombeck.html)

Associate Professor of Neurobiology, Weinberg College of Arts and Sciences

[**Bill Kath**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/kath-william.html)

Professor of Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science; Professor of Neurobiology, Weinberg College of Arts and Science; Co-Director and Project 3 Leader, NSF-Simons Center for Quantitative Biology

[**Erik Luijten**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/luijten-erik.html)

Chairperson, Materials Science and Engineering; McCormick School of Engineering and Applied Science

[**Madhav Mani**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/mani-madhav.html)

Assistant Professor of Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science; Assistant Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Project 1 & 4 Leader, NSF-Simons Center for Quantitative Biology

#### [**Carole LaBonne**](http://www.molbiosci.northwestern.edu/people/core-faculty/carole-labonne.html)

Chair and Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Project 1 Leader, NSF-Simons Center for Quantitative Biology

[**Niall Mangan**](http://www.niallmangan.com/)

Assistant Professor of Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science; Project 2 Leader, NSF-Simons Center for Quantitative Biology

[**Aaron Packman**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/packman-aaron.html)

Professor of Civil and Environmental Engineering, McCormick School of Engineering and Applied Science

[**Hermann Riecke**](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/riecke-hermann.html)

Professor of Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science

[**David Schwab**](http://www.ibis.northwestern.edu/people/faculty/david-schwab.html)

Assistant Professor of Physics and Astronomy, Weinberg College of Arts and Sciences

[**Mary Silber**](http://people.esam.northwestern.edu/~silber/)

Adjunct Professor of Engineering Sciences and Applied Mathematics, McCormick School of Engineering and Applied Science

#### [**Alec Wang**](http://www.molbiosci.northwestern.edu/people/core-faculty/xiaozhong-wang.html)

Associate Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Project 5 Leader, NSF-Simons Center for Quantitative Biology

#### [**JiPing Wang**](http://www.statistics.northwestern.edu/people/faculty/ji-ping-wang.html)

Professor of Statistics and Professor of Molecular Biosciences, Weinberg College of Arts and Sciences; Project 2 & 5 Leader, NSF-Simons Center for Quantitative Biology

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| **Applicant Information** | | | | | | | | | | | |
| Name: | | | | | | | | | | | |
| Date of birth: | | | | Gender:  Male  Female  Prefer not to say | | | | | | | |
| Are you a citizen, national, or permanent resident of the United States or its territories and possessions?        If you are not, does your visa permit you to work in the United States? If yes, please provide your country of citizenship and your visa type here: | | | | | | | | | | | |
| Permanent Address: | | | | | | | | | Email: | | |
| City: | | | State: | | | | | ZIP Code: | | | |
| Telephone: | | | | | | | | | | | |
| Demographic Information: This information is requested by the National Science Foundation for statistical purposes. Please check all that apply. | | | | | | | | | | | |
| American Indian or Alaska Native | | Asian | | | | | Black or African American | | | | Hispanic or Latinx |
| Native Pacific Islander | | White or Caucasian | | | | | Other (specify): | | | | Prefer not to say |
| **ACADEMIC Information** | | | | | | | | | | | |
| College/University: | | | | | | | | | | | |
| Major(s): | | | | | | | | | | | |
| Current Year: | Expected Graduation Date: | | | | | | | GPA: | | Northwestern Student ID Number (if applicable): | |
| Previous colleges attended (if applicable): | | | | | | | | | | | |
| Have you ever participated in a research program in the past?  No  Yes  Please indicate all research programs. When, Where, Name of Investigator: | | | | | | | | | | | |
| List any societies, fraternities/sororities, organizations, etc. you have been involved with during college/university: | | | | | | | | | | | |
| Please list any awards you have received while attending college/university: | | | | | | | | | | | |
| **Relevant Experience** | | | | | | | | | | | |
| **List any relevant work and/or laboratory experience:** | | | | | | | | | | | |
| Employer: | | | | | | | | | | | |
| Job Title: | | | | | Dates of Employment: | | | | | | |
| Duties: | | | | | | | | | | | |
| Employer: | | | | | | | | | | | |
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| Job Title: | | | | | | Dates of Employment: | | | | | |
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| **Rank Top Ten Preferred Research Groups**  (Click on the hyperlinks to visit their websites to learn more about their research.) |

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|  | [Danny Abrams](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/abrams-daniel.html) |  | [Richard Carthew](http://www.ibis.northwestern.edu/people/faculty/richard-carthew.html) |  | [Aaron Packman](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/packman-aaron.html) |
|  | [Ravi Allada](http://www.neurobiology.northwestern.edu/people/core-faculty/ravi-allada.html) |  | [Dan Dombeck](http://www.neurobiology.northwestern.edu/people/core-faculty/daniel-dombeck.html) |  | [Hermann Riecke](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/riecke-hermann.html) |
|  | [Luis Amaral](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/amaral-luis-a-nunes.html) |  | [Bill Kath](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/kath-william.html) |  | [David Schwab](http://www.ibis.northwestern.edu/people/faculty/david-schwab.html) |
|  | [Erik Andersen](http://www.molbiosci.northwestern.edu/people/core-faculty/erik-andersen.html) |  | [Erik Luijten](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/luijten-erik.html) |  | [Mary Silber](http://people.esam.northwestern.edu/~silber/) |
|  | [Antonio Auffinger](http://www.math.northwestern.edu/~auffing/) |  | [Madhav Mani](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/mani-madhav.html) |  | [Alec Wang](http://www.molbiosci.northwestern.edu/people/core-faculty/xiaozhong-wang.html) |
|  | [Neda Bagheri](http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/bagheri-neda.html) |  | [Carole LaBonne](http://www.molbiosci.northwestern.edu/people/core-faculty/carole-labonne.html) |  | [JiPing Wang](http://www.statistics.northwestern.edu/people/faculty/ji-ping-wang.html) |
|  | [Rosemary Braun](http://www.feinberg.northwestern.edu/faculty-profiles/az/profile.html?xid=23119) |  | [Niall Mangan](http://www.niallmangan.com/) |  | |

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| **Research Interests** (MARK all that apply) | | | |
| Dynamical Systems Theory | Modeling | Genetics | Biophysics |
| Stochastic Processes | Simulation | Structural Biology | Computational Neuroscience |
| Dimension Reduction | Network Models | Developmental Biology | Ecology and Evolutionary Biology |

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| **AGREEMENT** | |
| I attest that I meet the program requirements listed on this application, and I have disclosed all of the information this form is requesting of me. If accepted to this program, **I agree to present a 15-minute slide presentation at the end of the summer program, a poster presentation\* on my research at the Annual Conference on Quantitative Approaches in Biology, and I agree not to take on any other paid work or research grants**. In submitting this application, I understand that failure to disclose any requested information and/or failure to comply with the above terms and conditions may result in disqualification of and/or termination from the program. | |
| Signature of applicant: | Date: |

For additional information about this program, please contact Tiffany Ozmina at [tiffany.ozmina@northwestern.edu](mailto:tiffany.ozmina@northwestern.edu)

\*Other arrangements concerning the poster presentation can be made if you live outside of the Chicago metropolitan area.