Bioinformatics

NC State offers two closely linked interdepartmental graduate programs in Genomic Sciences. All students pursuing degrees in either Bioinformatics and Functional Genomics will take a shared core set of courses that promote breadth of knowledge and encourage interdisciplinary collaboration.

Functional Genomics students focus on laboratory research requiring the collection and interpretation of massive data sets that enhance our knowledge of organismal biology, gene expression, protein and nucleic acid structure and function, and genetic and environmental interactions. Bioinformatics students develop skills to manage and analyze these large and complex "omics" data sets. These two groups of students will be prepared to work seamlessly as parts of teams addressing fundamentally important problems in areas including the biomedical sciences, plant and animal breeding, evolutionary biology, ecology, and toxicology.

Unique and exceptional resources include the Bioinformatics Research Center and the Genome Research Laboratory.

Master's Degree Requirements

Students take a 15-credit core curriculum shared by all students in the Bioinformatics and Functional Genomics degree programs, followed by additional bioinformatics and elective courses. The Master's of Bioinformatics requires a minimum of 33 credit hours. No thesis is required.

Doctoral Degree Requirements

Students take a 15-credit core curriculum shared by all students in the Bioinformatics and Functional Genomics degree programs, followed by additional bioinformatics and elective courses. The Ph.D. in Bioinformatics requires a total of 72 credits, and all students participate in a journal club, monthly seminar series and research ethics training. All PhD students assemble advisory committees including faculty from both Bioinformatics and Functional Genomics to promote effective interdisciplinary research and collaboration, and many students have coadvisors representing different fields.

Student Financial Support

Fellowships are available through the program, and students may also be supported by research and training grants awarded to our faculty members.

More Information

Bioinformatics Program Website (https://brc.ncsu.edu/genomics/ bioinformatics/)

Admission Requirements

Students applying to either the Master's or PhD program in Bioinformatics are evaluated on their background in three key areas: mathematics and statistics; genetics and biological sciences; and computer science. Students should have completed at least two semesters of calculus, and additional courses in mathematics and statistics are preferred. Evidence of basic computer programming skills is required. A course in genetics is strongly encouraged. Previous research experience is a significant advantage.

Applicant Information

- Delivery Method: On-Campus
- Entrance Exam: None
- Interview Required: None

Application Deadlines

• Fall: January 15

Degrees

- Bioinformatics (MR) (http://catalog.ncsu.edu/graduate/ interdisciplinary/bioinformatics/bioinformatics-mr/)
- Bioinformatics (PhD) (http://catalog.ncsu.edu/graduate/ interdisciplinary/bioinformatics/bioinformatics-phd/)

Faculty

Full Professors

Jose Miguel Alonso Christopher M. Ashwell Russell J. Borski Matthew Breen Dennis T. Brown Ignazio Carbone Marie Davidian Jon Doyle **Robert Graham Franks** Sujit K. Ghosh Amy Michele Grunden Jason M. Haugh Fikret Isik Erich L. Kaltofen Robert M. Kelly Matthew D. Koci Cristina Lanzas Bailian Li Hsiao-Ching Liu Christian Maltecca Earl S. Maxwell Melissa Schuster Merrill David C. Muddiman Spencer V. Muse

Charles H. Opperman James N. Petitte Robert M. Petters Jorge A. Piedrahita Brian J. Reich Maria C. Sagui Seth M. Sullivant Jung-Ying Tzeng Mladen Alan Vouk Ross W. Whetten Fred Andrew Wright Qiuyun Xiang George C Yencho Zhaobang Zeng Daowen Zhang

Associate Professors

David Lawrence Aylor Nicolas Buchler Gavin Clay Conant Michael B. Goshe Steffen Heber Slavko Komarnytsky David S. Lalush Terri A. Long Arnab Maity Flora Meilleur Dahlia M. Nielsen Jonathan W. Olson Xinxia Peng David Michael Reif Michael L. Sikes Charles Eugene Smith Lori June Unruh Snyder Yihui Zhou

Assistant Professors

Orlando Arguello-Miranda

Hamid Ashrafi

Christa Baker

Louis-Marie Bobay

Benjamin J. Callahan

Zixuan Cang

Abdulkerim Eroglu

Rafael Felipe Guerrero Farias

Denis Fourches

Joseph Lee Gage

Caitlin Heil

Amanda Marie Hulse

Jicai Jiang

Xingcheng Lin

Zhe Lyu

Kurt Marsden

Marcelo Mollinari

David Rasmussen

Christina Zakas

Emeritus Faculty

William Reid Atchley David Bird Wendy F. Boss Rebecca S. Boston James W. Brown Vincent L. C. Chiang Eugene Eisen Todd Robert Klaenhammer Jeffrey Thorne Wayne Tompkins Anastasios A. Tsiatis Paul L. Wollenzien