Genetics

The Genetics Graduate Program is a University wide program. Current faculty are in 14 Departments and four Colleges. The Genetics Program provides a well-balanced program of graduate course work and research training. The faculty conducts basic research in all areas of genetics, including molecular, cellular, and developmental genetics; behavioral genetics, biomedical genetics, evolutionary, population and quantitative genetics, statistical genetics, and bioinformatics. Faculty research utilizes both traditional model organisms (fruit flies, mice and Arabidopsis) and non-traditional systems (cats, cockroaches, dairy cattle, dogs, maize, pigs, pine trees and more). Interdisciplinary research is encouraged.

Admission Requirements

Applicants may come from a number of undergraduate programs that include biological, agricultural, physical and mathematical science training. All applications are screened by an admissions committee, and the best qualified applicants will be accepted up to the number of spaces that are available for new students. The program uses the requirements set by the Graduate School to evaluate applications (GRE, unofficial transcripts from each previously attended college or university, three letters of recommendation, personal statement, and proof of English proficiency for non-US citizens). Competitive applicants will include research and other relevant experience as well as their interest and fit for the program in their personal statement.

Master’s Degree Requirements

The M.S. degree requires a minimum of 30 credit hours, of which 14 hours are core course requirements, three hours are additional elective graduate courses with substantial genetics content, and three hours are other elective graduate courses. M.S. students majoring in Genetics are required to complete dissertation research with three credit hours of Master’s Supervised Research, six credits of Master’s Thesis Research, one credit of Master’s Thesis Prep, and one credit of Master’s Examination. M.S. students are also required to teach one semester of undergraduate courses and may enroll in three credits of Master’s Supervised Teaching. 12 hours of required courses are required for Genetics minors. The Master’s of Genetics requires a minimum of 31 credit hours, of which 17 hours are core course requirements, six hours are additional elective genetics courses and eight hours are elective graduate courses.

Doctoral Degree Requirements

A total of 18 hours of seven core courses and 12 hours of elective graduate courses, nine of which have substantial genetics content, is required of all majors. Ph.D. students majoring in Genetics are required to complete dissertation research with three credit hours of Doctoral Supervised Research and a combination of Doctoral Dissertation Research, Doctoral Preliminary Examination, and Doctoral Dissertation Prep to total 39 hours. Students are also required to and teach two semesters of undergraduate courses and may enroll in six credits of Doctoral Supervised Teaching to be used toward the remaining 39 credit hours. 12 hours of required courses are required for Genetics minors.

Student Financial Support

Genetics graduate students are supported on Research and Teaching Assistantships (RAs and TAs). Specific pay varies depending on the assistantship, and students are paid bi-weekly. More information will be provided at the time of acceptance into the program.

Other Relevant Information

All M. S. and Ph. D. students rotate through three laboratories during their first semester. At the end of the semester, they choose a laboratory for their research activities consistent with their interests and available research projects. Provisions are available for a co-major and collaborative research in more than one laboratory.

Degrees

• Genetics (MR) (http://catalog.ncsu.edu/graduate/interdisciplinary/genetics/genetics-mr/)
• Genetics (MS) (http://catalog.ncsu.edu/graduate/interdisciplinary/genetics/genetics-ms/)
• Genetics (PhD) (http://catalog.ncsu.edu/graduate/interdisciplinary/genetics/genetics-phd/)
• Genetics (Minor) (http://catalog.ncsu.edu/graduate/interdisciplinary/genetics/genetics-minor/)

Faculty

Full Professors
Jose Miguel Alonso
Peter J. Balint-Kurti
Rodolphe Barrangou
David M. Bird
Adam Joseph Birkenheuer
Matthew Breen
Ignazio Carbone
Ralph A. Dean
Ralph E. Dewey
Robert Graham Franks
Troy Ghashghaei
John R. Godwin
Major M. Goodman
Fred L. Gould
Candace Hope Haigler
Linda Kay Hanley-Bowdoin
Christine Veronica Hawkes
James B. Holland
Fikret Isik
Ramsey S. Lewis
Hsiao-Ching Liu  
Steven Lommel  
James W. Mahaffey  
Christian Maltecca  
Carolyn Jane Mattingly  
Kathryn Montome Meurs  
Spencer V. Muse  
Natasha J. Olby  
Charles H. Opperman  
Emilie Francesca Rissman  
Jean B. Ristaino  
Coby J. Schal  
Maxwell J. Scott  
Heike Inge Ada Sederoff  
Seth M. Sullivant  
William F. Thompson  
Jeffrey L. Thorne  
Jung-Ying Tzeng  
Keith R. Wenginger  
Ross W. Whetten  
Brian M. Wiegmann  
Qiuyun Xiang  
Deyu Xie  
Jeffrey A. Yoder  
Zhaobang Zeng  

John Edward Meitzen  
Susana Rita Milla-Lewis  
Nanette M. Nascone-Yoder  
Dahlia M. Nielsen  
Xinxia Peng  
Mareika Pierce  
Antonio Planchart  
David Michael Reif  
Michael Hay Reiskind  
Reade Bruce Roberts  
Michael L. Sikes  
Rosangela Sozzani  
Anna N. Stepanova  
Yihui Zhou  

Assistant Professors  
Hamid Ashrafi  
Benjamin John Callahan  
Michael Anthony Cowley  
Colleen Jennifer Doherty  
Amanda Marie Hulse  
Albert Jun Qi Keung  
Manuel Kleiner  
Caroline Laplante  
Wusheng Liu  
Anna Michelle Locke  
Elizabeth Lucas  
Kurt Marsden  
Santosh Kumar Mishra  
Casey C. Nestor  
Benjamin J. Reading  
Ruben Rellan Alvarez  
Adriana San Miguel Delgadillo  
Caitlin Suzanne Smukowski Heil  
Casey Michelle Theriot  
Laurianne Chantal Van Landeghem  

Associate Professors  
David Lawrence Aylor  
Chase Beisel  
Nicolas Emile Buchler  
Gavin Clay Conant  
Steffen Heber  
Vasu Kuraparthi  
Randall Brian Langerhans  
Terri A. Long  
Marce D. Lorenzen
Emeritus Professors
William Reid Atchley
Stephanie E. Curtis
Eugene Eisen
Charles S. Levings III
Todd Robert Klaenhammer
Wesley Edwin Kloos
Dale F. Matzinger
Wendell Herbert McKenzie
John G. Scandalios
Henry E. Schaffer
Ron Ross Sederoff
Charles William Stuber
Earl A. Wernsman

Adjunct professors
Robert R. Anholt
Trudy F. MacKay
Alison Anne Motsinger-Reif
Nadia Singh