

Cluster Hire in Quantitative and Computational Developmental Biology North Carolina State University

As part of the **Chancellor's Faculty Excellence Program**, **NC State University** seeks three outstanding faculty at any rank to expand the new interdisciplinary faculty cluster on **Quantitative and Computational Developmental Biology**. Together with NC State's existing strength in quantitative/computational sciences and engineering, this cluster will propel NC State to the forefront of efforts to define new principles in developing biological systems.

About the Cluster

Research in developmental biology has spawned the field of stem cell biology, revealed causes of birth defects, informed oncology and efforts to engineer artificial tissues and organs, and illuminated the basis of crop yield and quality. However, the transition from egg to embryo is staggeringly complex and it is clear that entirely new experimental and analytical approaches are required to fully understand the principles of development and to be able to selectively modulate developmental processes for human benefit. We seek to assemble a unified and highly collaborative group whose goal is to apply quantitative and computational approaches to understand, on multiple levels, how molecules and physical-mechanical forces dynamically synergize to engender the remarkable molecular machines, cellular constituents, tissues, organs, organisms, super-organisms, and ecosystems that exist in our world.

About the Position

Successful candidates will engage in transformative research which integrates expertise in biological, biophysical, computational, and/or mathematical methods to investigate dynamic events in human, animal or plant development on any level, from the nanoscale to the whole organism. The cluster seeks individuals with expertise in using state-of-the-art quantitative methodologies and/or computational modeling to address fundamental aspects of Developmental Biology such as:

- the mechanisms that regulate individual cell behavior, proliferation, differentiation, potency and reprogramming,
- how material properties and dynamic physical / mechanical forces influence collective embryonic cell behavior and tissue shape,
- the formation, maintenance and appropriate scaling of the geometric configurations of cells and tissues that comprise organs and organisms, and
- the mechanisms that underlie the evolution of new biological forms and facilitate morphological plasticity in response to stress or environmental change.

Although we are interested in individuals who can bridge experiment and theory, and have the ability to translate research outcomes to address biomedical or agricultural challenges, applicants whose expertise is mainly in the computational realm are also strongly encouraged to apply. Demonstrated collaboration as a member of a multi-disciplinary team is essential.

Hiring may occur at the level of Assistant, Associate, or Full Professor. The home department is anticipated to be in one of the four participating colleges ([Engineering](#), [Sciences](#), [Veterinary Medicine](#) and [Agriculture and Life Sciences](#)) and will be determined based on credentials and research fit. Hires will be expected to provide key leadership in quantitative and/or computational biology across the university, teach in existing courses, and develop specialized coursework in their area of expertise.

Minimum requirements include a PhD in a relevant field from an accredited institution. Interested candidates should submit: a CV, a 2-3 page research plan, **a cover letter describing prior multi-disciplinary research efforts and how their research prospectus addresses the goals of the cluster** (see <https://facultyclusters.ncsu.edu/clusters/modeling-the-living-embryo/>), and contact information for 3 references. Materials for consideration will be accepted electronically via <https://jobs.ncsu.edu/postings/88540>. Review of applications will begin immediately and continue until the position is filled. Questions about the position may be directed to Dr. Nanette Nascone-Yoder (nmnascon@ncsu.edu).

NC State University provides a vibrant environment for research, teaching and mentoring across disciplines; ample opportunities will be available for collaborations with existing faculty and other newly hired colleagues in the cluster. Our location in the Research Triangle also facilitates interaction with faculty at Duke University and the University of North Carolina at Chapel Hill, as well as with industry and government agencies.

Confidential inquiries and nominations should be directed to:

Dr. Nanette Nascone-Yoder (nmnascon@ncsu.edu).

Cluster Search Committee

Belinda Akpa (Molecular Biomedical Sciences)

Ke Cheng (Biomedical Engineering)

Mary Elting (Physics)

Bob Franks (Plant and Microbial Biology)

Troy Ghashghaei (Molecular Biomedical Sciences), **cluster co-lead**

Mansoor Haider (Math)

Candace Haigler (Crop Science)

Caroline Laplante (Molecular Biomedical Sciences)

Sharon Lubkin (Math)

Jim Mahaffey (Biological Sciences)

Nanette Nascone-Yoder (Molecular Biomedical Sciences), **cluster co-lead** (nmnascon@ncsu.edu)

Balaji Rao (Chemical & Biomolecular Engineering)

Greg Reeves (Chemical & Biomolecular Engineering)

Ross Sozzani (Plant and Microbial Biology)

Cranos Williams (Electrical & Computer Engineering)

Related research and facilities at NCSU:

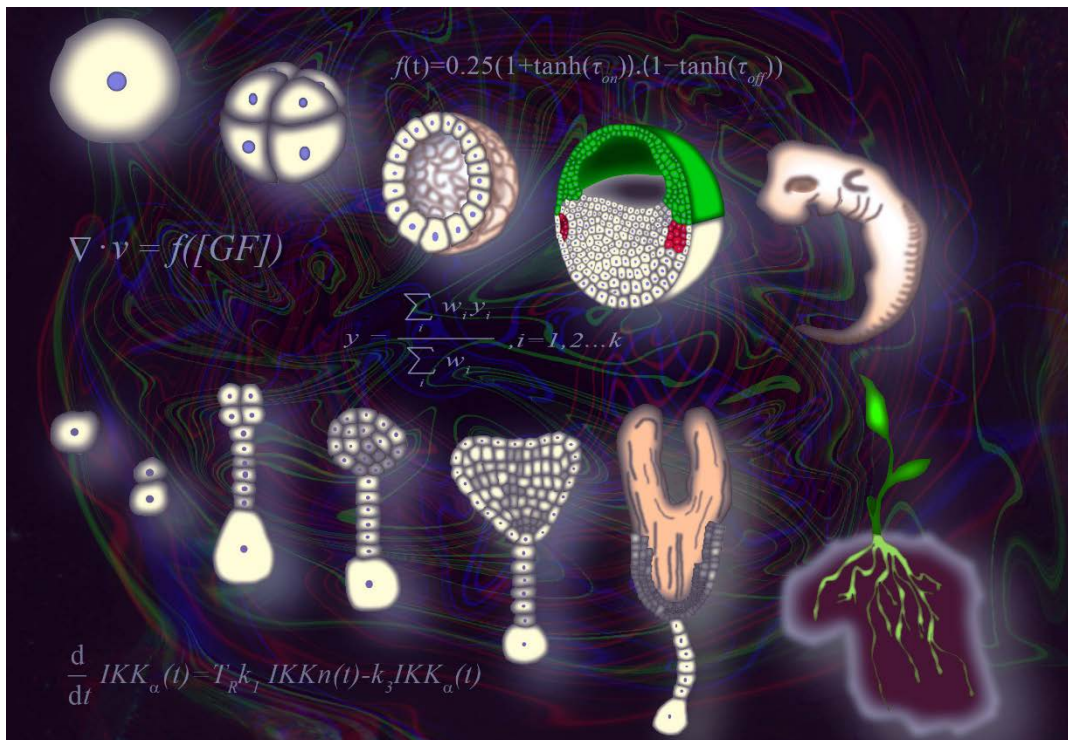
[Center for Comparative Medicine and Translational Research](#)

[Center for Research in Scientific Computation](#)

[Center for Quantitative Sciences in Biomedicine](#)

[The Statistical and Applied Mathematical Sciences Institute](#)

[Center for Plant Breeding and Applied Plant Genomics](#)



The Chancellor's Faculty Excellence Program

The Chancellor's Faculty Excellence Program, launched in 2011, is bringing some of the best and brightest minds to join NC State's interdisciplinary efforts to solve some of the globe's most significant problems. Guided by a strong strategic plan and an aggressive vision, the cluster hiring program is adding new faculty members in select fields to add more breadth and depth to NC State's already-strong efforts. The Chancellor's Faculty Excellence Program marks a major initiative of the university's strategic plan, "The Pathway to the Future." The current 20 clusters have been selected on several important criteria:

- Ability to achieve national eminence in proposed topic
- Alignment with university strategic priorities
- Demonstration of real interdisciplinarity
- Potential to build on an existing university strength (or strength of the existing assets)
- Opportunity for faculty to engage in both research and teaching of proposed topic
- Ability to attract funding
- Commitment to share resources and physical infrastructure
- Inclusion of multiple colleges
- Demonstration of a balanced hiring plan with clear leadership
- Potential to attract diverse faculty

The Chancellor's Faculty Excellence Program is managed through the Office of the Provost. Using a faculty initiated proposal process, twelve clusters were announced in February 2012 and eight in April 2015.

- Bioinformatics
- Carbon Electronics
- Data-driven Science
- Digital Transformation of Education
- Emerging Plant Disease and Global Food Security
- Environmental Health Science
- Forensic Sciences
- Genetic Engineering and Society
- Geospatial Analytics
- Global Environmental Change and Human Well-Being
- Global Water, Sanitation and Hygiene
- Innovation + Design
- Leadership in Public Science
- Microbiomes and Complex Microbial Communities
- Modeling the Living Embryo
- Personalized Medicine Sustainable
- Sustainable Energy Systems and Policy
- Synthetic and Systems Biology
- Translational Regenerative Medicine
- Visual Narrative

To date, over 60 new faculty have been hired via the Chancellor's Faculty Excellence Program. In addition to bringing outstanding new faculty to campus and moving NC State toward national eminence, the Chancellor's Faculty Excellence Program has seeded and nurtured an expanding culture of interdisciplinarity on campus. We invite you to explore more information about the Chancellor's Faculty Excellence Program and this cluster at <http://ncsu.edu/workthatmatters>.

About NC State University

NC State was founded with a purpose: to create economic, societal and intellectual prosperity for the people of North Carolina and the country. We began as a land-grant institution teaching the agricultural and mechanical arts. Today, we're a pre-eminent research enterprise that excels in science, technology, engineering, math, design, the humanities and social sciences, textiles and veterinary medicine.



NC State students, faculty and staff take problems in hand and work with industry, government and nonprofit partners to solve them. Our 34,000-plus high-performing students apply what they learn in the real world by conducting research, working in internships and co-ops, and performing acts of world-changing service. That experiential education ensures they leave here ready to lead the workforce, confident in the knowledge that NC State consistently rates as one of the best values in higher education.

Each year, NC State adds \$6.5 billion to the statewide economy, equivalent to creating more than 90,000 new jobs. That represents significant return on investment for the citizens of North Carolina in the form of research advances, innovative technologies, successful companies, skilled graduates and new jobs waiting for them.

Our 9,000 faculty and staff are world leaders in their fields, bridging the divides between academic disciplines and training high-caliber students to meet tomorrow's challenges. Together, they forge powerful partnerships with government, industry, nonprofits and academia to remake our world for the better.

NC State is leading efforts to curb nuclear proliferation, develop a smart electric grid, create self-powered health monitors, help farmers confront climate change and build a new American manufacturing sector. Our award-winning Centennial Campus is home to more than 70 public and private partners — as well as the innovative Hunt Library, which Time magazine has dubbed “the library of the future.”

Raleigh and the Community

It all happens in one of the fastest-growing urban centers in America. A top spot for young professionals and families, Raleigh is nationally recognized as a city on the rise:

- No. 1 among the best places for business and careers (Forbes, 2014)
- No. 1 among U.S. cities attracting the most families (Forbes, 2014)
- No. 2 among America's 15 best cities for young professionals (Forbes, 2014)
- No. 3 among the best midsize U.S. metro areas for college students (American Institute for Economic Research, 2014)
- Recently selected as a Google Fiber expansion city

With Durham and Chapel Hill, Raleigh anchors the Research Triangle, a national hotspot for high-tech enterprise. The top companies in the region — including IBM, Cisco Systems, SAS Institute, Biogen Idec and GlaxoSmithKline — are among the country's best employers. They also lead the way in hiring new NC State graduates.

More than 125 years after its creation, NC State continues to make its founding purpose a reality. Every day, our career-ready graduates and world-leading faculty make the fruits of learning and discovery available to people across the state, throughout the nation and around the world.



For More Information:

NC State University at <https://www.ncsu.edu/>

NC State: Think and Do at <https://www.ncsu.edu/think-and-do>

NC State's Strategic Plan at <http://info.ncsu.edu/strategic-planning/overview/pathway-to-the-future/>

NC State's Commitment to Diversity at <http://oied.ncsu.edu/diversity/chancellors-statement-on-diversity/>

NC State University is an equal opportunity and affirmative action employer. All qualified applicants will receive consideration for employment without regard to race, color, national origin, religion, sex, gender identity, age, sexual orientation, genetic information, status as an individual with a disability, or status as a protected veteran. Individuals with disabilities requiring disability-related accommodations in the application and interview process, please call 919.515.3148. We welcome the opportunity to work with candidates to identify suitable employment opportunities for spouses or partners.