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A commitment to being at the top characterizes the passion and hard work of our faculty, students, and staff, and that was true in 2014–2015.

The work done in the College of Natural Sciences — training tomorrow’s scientists and mathematicians, making high-impact discoveries, and translating our research to society at large — makes a difference every day here in Texas and beyond. I am proud to serve alongside smart, dedicated people whose continued efforts help make ours one of the finest colleges of science in the world.

Linda Hicke
Dean, College of Natural Sciences
KEY ACCOMPLISHMENTS AND FUTURE GOALS

The College of Natural Sciences provides research-enhanced education and promotes educationally connected research to achieve its mission of excellence. Our three strategic priorities are to:

1. Optimally train scientists and mathematicians for the future.
2. Produce world-class, high-impact research discoveries.
3. Make our impact known across campus, the state and the nation.

A summary of our progress on the 2013 Strategic Plan and our metrics for tracking success can be found at cns.utexas.edu/strategic-plan/progress.

Key Accomplishments of 2014–15

- Launch of CNS Cornerstones, connecting every incoming student with a small learning community and guideposts for academic success.
- Significant new recurring funds secured to support the College’s expanded instructional needs.
- Stipends for recruiting top graduate students increased, helping the College remain nationally competitive.
- Hired new faculty diverse in their fields, backgrounds and ethnicities.
- Facilities renovations initiated that will lead to a complete overhaul of the 1929 and 1978 wings of Welch Hall.
- New investments from the Gates and Keck Foundations will expand the Freshman Research Initiative’s use of cutting-edge technology.
- Winning images from the College’s Visualizing Science contest were displayed to promote campus-wide awareness of the power and beauty of our research.

Focus for 2015–16

- Define the experiences and course structures important for the 2020 CNS graduate and establish a plan to implement changes.
- Identify funding and plan for renovation of Robert Lee Moore Hall (RLM).
- Hire senior faculty as part of the Faculty Investment Initiative to transform departments and nucleate future areas of research.
- Bring all graduate program stipends to nationally competitive levels.
STRATEGIC GOALS UPDATES:
DEVELOPING SCIENTIFIC LEADERS
In 2014–2015, Natural Sciences had 361 tenured and tenure-track faculty.

### Tenured and Tenure-Track Faculty by Department

<table>
<thead>
<tr>
<th>Department</th>
<th>2014–2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTRONOMY</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY</td>
<td>29</td>
<td></td>
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<tr>
<td>COMPUTER SCIENCE</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>HUMAN DEVELOPMENT &amp; FAMILY SCIENCES</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>INTEGRATIVE BIOLOGY</td>
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<td></td>
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<tr>
<td>MARINE SCIENCE</td>
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<tr>
<td>MATHEMATICS</td>
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<td></td>
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<tr>
<td>MOLECULAR BIOSCIENCES</td>
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<tr>
<td>NEUROSCIENCE</td>
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<tr>
<td>NUTRITIONAL SCIENCES</td>
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<tr>
<td>PHYSICS</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>STATISTICS AND DATA SCIENCES</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TEXTILES AND APPAREL</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>361</strong></td>
<td></td>
</tr>
</tbody>
</table>
New Faculty for 2015–2016
Eleven new faculty have joined the College this fall, and additional faculty will join in the year ahead, for a total of 18 new faculty.

Tim Andeen, Assistant Professor – Physics
Tim Andeen received his undergraduate degree in physics from Gustavus Adolphus College, in St. Peter, Minnesota, and a Ph.D. in physics from Northwestern University in 2008. He spent the next two years as a CERN Fellow in Geneva, Switzerland, where he joined the ATLAS Experiment. In 2010 he moved to Nevis Laboratory at Columbia University. Dr. Andeen’s research in experimental particle physics extends from the most precise single measurement of the W boson mass in 2009 to, more recently, searching for the possibility of heavy quarks that may decay into the recently discovered Higgs boson. Additionally, Dr. Andeen develops new instrumentation for particle physics detectors, focusing in the area of fast, low power, radiation-hard electronics.

Carlos Baiz, Assistant Professor – Chemistry
Carlos Baiz received his doctorate in Chemistry from the University of Michigan, Ann Arbor in 2011, after receiving his B.S. in Chemistry from Michigan Technological University in 2005. During his postdoctoral research as an NIH Ruth L. Kirschstein Fellow in the group of Prof. Andrei Tokmakoff, initially at the Massachusetts Institute of Technology, and later at the University of Chicago, Dr. Baiz worked on mapping protein-folding mechanisms using multidimensional infrared spectroscopy. Dr. Baiz’s current research interests straddle the interface between biophysics and physical chemistry. Research in his lab focuses on understanding the molecular mechanisms of spontaneous phase separation in biological membranes and probing the mechanisms of membrane-assisted protein folding. In addition, his group develops new optical techniques by combining ultrafast spectroscopy with near-field microscopy to probe the molecular dynamics of biological interfaces.

Brett Baker, Assistant Professor – Marine Science
Brett Baker obtained his doctoral degree in 2014 from the University of Michigan where he studied microbes in deep-sea hydrothermal plumes. Dr. Baker is a microbial ecologist whose research is at the intersection of ecology, evolution, oceanography, and geochemistry. His research harnesses “omic” approaches (genomics, proteomics, and transcriptomics) to understand whole communities in nature. He is particularly interested in how novel and uncultured microbes interact and are involved in important global processes such as carbon cycling. By obtaining genomes of entirely new branches on the tree of life, his research also provides insights into how life has evolved on the planet. His laboratory focuses on a variety of marine and subsurface environments such as deep sea and estuary sediments, and the Gulf of Mexico (dead zone and oil spills).
Michael Boylan-Kolchin, Assistant Professor – Astronomy
Michael Boylan-Kolchin received his B.A. in Astrophysics from Columbia University and his Ph.D. in Physics from the University of California, Berkeley. Prior to joining the CNS faculty, he was a postdoctoral fellow at the Max Planck Institute for Astrophysics, a Center for Galaxy Evolution fellow at the University of California at Irvine, and an assistant professor in the Department of Astronomy at the University of Maryland. Dr. Boylan-Kolchin studies connections between the physics of cosmological structure formation and galaxy formation, with a focus on the Milky Way and other nearby galaxies. His research combines theoretical work, supercomputer simulations, and observations (often using the Hubble Space Telescope) to explore a variety of topics, including the earliest stages of galaxy formation and the nature of dark matter.

Caitlin Casey, Assistant Professor – Astronomy
Caitlin Casey received her Bachelors of Science in Physics, Astronomy and Applied Mathematics from the University of Arizona and her Ph.D. from the University of Cambridge, where she was also a Gates Cambridge Scholar funded by the Bill and Melinda Gates Foundation and Cambridge Trusts. After obtaining her Ph.D. in 2010, she completed a Hubble Postdoctoral Fellowship at the University of Hawaii and a McCue Postdoctoral Fellowship at the University of California, Irvine. Dr. Casey studies the formation and evolution of the most luminous galaxies in the Universe. These extreme galaxies pose a unique challenge to cosmological simulations and galaxy formation theory and, to date, have been very difficult to study due to limitations in technology.

Livia Eberlin, Assistant Professor – Chemistry
Livia Eberlin received her bachelor’s degree in chemistry from the State University of Campinas (Brazil) in 2007, and her Ph.D. in analytical chemistry from Purdue University in 2012. In recognition of her Ph.D. thesis research in mass spectrometry, she received the Nobel Laureate Signature Award for Graduate Education in Chemistry from the American Chemical Society. She completed postdoctoral research as a L’Oréal for Women in Science Fellow at Stanford. Dr. Eberlin’s research focuses on applying novel mass spectrometry imaging technology to health related research. In particular, she is interested in using ambient mass spectrometry in creative ways to address critical problems in cancer research. Dr. Eberlin’s interdisciplinary research involves working with biologists, oncologists, surgeons, pathologists and statisticians to develop powerful chemical approaches that can be used in real-life scenarios such as in clinical practice.
Raphael Flauger, Assistant Professor – Physics
Raphael Flauger completed his undergraduate studies at Julius-Maximilians-Universität Würzburg in Würzburg, Germany and received an M.Sc. from Imperial College in London in Quantum Fields and Fundamental Forces. He received his Ph.D. under the supervision of Dr. Steven Weinberg at the University of Texas at Austin in 2009. He also held postdoctoral positions at Yale and New York University before becoming an Assistant Professor at Carnegie Mellon University. Dr. Flauger works on models of the early universe and is interested in astrophysical processes that provide clues about the very early universe. In addition to cosmology, Dr. Flauger is interested in both formal aspects and applications of quantum field theories.

Scott Niekum, Assistant Professor – Computer Science
Scott Niekum received his Ph.D. in Computer Science from the University of Massachusetts, Amherst in 2013 under the supervision of Andrew Barto, and his B.S. from Carnegie Mellon University in 2005. Previously, he was a postdoctoral fellow at the Carnegie Mellon Robotics Institute, working with Prof. Chris Atkeson. His research interests include robot learning from demonstration, robotic manipulation, time-series analysis, and reinforcement learning.

Stefania Patrizi, Assistant Professor – Department of Mathematics
Stefania Patrizi received her Ph.D. in Mathematics from La Sapienza University in Rome in 2010. From 2010–2013 she was a postdoctoral fellow in the UT Austin-Portugal CoLab program and from 2013–2015 she was a postdoctoral fellow at the Weierstrass Institute for Applied Analysis and Stochastics in Berlin. Dr. Patrizi’s research focuses on partial differential equations, in particular free boundary problems, geometric properties of the solutions to elliptic equations, non-local operators, and homogenization problems. Her research has applications in many areas of mathematics and science such as segregation phenomena in social and biological processes and the theory of plastic deformations in crystals.

Stephen T. Russell, Professor – Human Development and Family Sciences
Stephen Russell is the Priscilla Pond Flawn Regents Professor in Child Development in the Department of Human Development and Family Sciences. He studies adolescent development, with an emphasis on adolescent sexuality, LGBT youth, and parent-adolescent relationships. Much of his research is guided by a commitment to create social change to support healthy adolescent development. He is chair of the Board of Directors of the Sexuality Information and Education Council of the United States and was an elected board member of the National Council on Family Relations.
Fatima Varner, Assistant Professor – Human Development and Family Sciences

Fatima Varner is a graduate of Northwestern University’s Ph.D. program in Human Development and Social Policy and received her bachelor’s degree from North Carolina State University. Dr. Varner also was a Postdoctoral Research Fellow at the Center for the Study of Black Youth in Context at the University of Michigan and was an Assistant Professor at Fordham University. Her major research interests include the roles of ethnicity, gender, and context on parenting, family processes, and adolescent outcomes. She is especially interested in the pathways through which racial discrimination influences parenting and adolescents’ academic achievement in African-American families.

Faculty scheduled to join the College in the year ahead:
Vijay Chidambaram Assistant Professor, Department of Computer Science
Caroline Farrior Assistant Professor, Department of Integrative Biology
Joseph Neeman Assistant Professor, Department of Mathematics
Simon Peter Assistant Professor, Department of Computer Science
Andrew Potter Assistant Professor, Department of Physics
Christopher Rossbach Assistant Professor, Department of Computer Science
Ngoc Tran Assistant Professor, Department of Mathematics
Major Faculty Research and Teaching Awards

Faculty Research Award Recipients

NSF CAREER Awards
- Laura Colgin, Department of Neuroscience
- İşil Dillig, Department of Computer Science
- Ilya Finkelstein, Department of Molecular Biosciences
- Tim Perutz, Department of Mathematics

Faraday Medal
- Richard Crooks, Department of Chemistry

Fellows in the American Academy of Arts and Sciences
- Björn Engquist, Department of Mathematics
- George Georgiou, Department of Molecular Biosciences

Fellows in the American Association for the Advancement of Science
- Richard Aldrich, Department of Neuroscience
- Stanley Roux, Department of Molecular Biosciences

Sloan Research Fellowship
- İşil Dillig, Department of Computer Science

Association for Computing Machinery SIGMETRICS Achievement Award
- François Baccelli, Department of Mathematics

London Mathematics Society Senior Berkwick Prize
- Dan Freed, Department of Mathematics

American Cancer Society Research Scholar Award; Amgen Young Investigators’ Award; Biomatik Distinguished Junior Faculty Award
- Guangbin Dong, Department of Chemistry

ChemComm Emerging Investigator Lectureship Award
- Simon Humphrey, Department of Chemistry

International Union of Pure and Applied Physics Young Scientist Prize
- Keji Lai, Department of Physics

American Vacuum Society Recognition for Excellence in Leadership
- Alex Demkov, Department of Physics

Margaret C. Etter Early Career Award from the American Crystallographic Association
- Yan Jessie Zhang, Department of Molecular Biosciences

Stampacchia Gold Medal from the Italian Mathematical Union
- Alessio Figalli, Department of Mathematics

Eminent Ecologist Award from the Ecological Society of America
- Eric Pianka, Department of Integrative Biology

Association for Women in Mathematics Sonia Kovalevsky Lecturer for 2014
- Irene Gamba, Department of Mathematics
University Teaching Awards Recipients

*President’s Associates Teaching Excellence*
  - Bruce Porter, Department of Computer Science

*Regents’ Outstanding Teaching Awards*
  - David Vanden Bout, Department of Chemistry
  - Lorenzo Alvisi, Department of Computer Science
  - Elaine Rich, Department of Computer Science
  - Jane Arledge, Department of Mathematics
  - George Pollak, Department of Neuroscience

*Academy of Distinguished Teachers*
  - John Markert, Department of Physics

CNS Faculty Teaching Awards

Michael Rose, Department of Chemistry
Peter Stone, Department of Computer Science
Jaimie Davis, School of Human Ecology
Shalene Jha, Department of Integrative Biology
Gerald ‘Chris’ Shank, Department of Marine Science
Gustavo Cepparo, Department of Mathematics
Amanda Hager, Department of Mathematics
Jeffrey Barrick, Department of Molecular Biosciences
Andrew Ellington, Department of Molecular Biosciences
Kimberly Raab-Graham, Department of Neuroscience
Can Kilic, Department of Physics
Boris Breizman, Department of Physics
Margaret ‘Maggie’ Myers, Department of Statistics and Data Sciences

National Teaching Award

*Excellence in Education Award from the American Society of Plant Biologists*
  - Stan Roux, Department of Molecular Biosciences
Re-envisioning Graduate Education
The College is working to ensure that our graduate programs continue to offer optimal academic and professional preparation to our students as scientific disciplines and job markets change. We have begun conversations with many stakeholders — CNS faculty, current graduate students, graduate alumni, employers, and the Graduate School — to critically examine how graduate education should evolve to best serve our students, today and tomorrow.

Graduate Stipend Increases

![Stipend Chart](chart.png)
Major Graduate Student and Postdoc Awards

2015 National Science Foundation Graduate Fellowship Awardees
Cheasequah Blevins, Neuroscience
Edward Evans, Chemistry
Adam Gordon, Neuroscience
Devon Humphreys, Ecology, Evolution and Behavior
Hannah Marti, Ecology, Evolution and Behavior
Megan O’Connell, Plant Biology
Todd Olson, Ecology, Evolution, and Behavior
Matthew Pomrenze, Neuroscience
Nicolas Reyes, Mathematics
Jesse Thomason, Computer Science
Aaron Juarez, Astronomy

2015 National Science Foundation Graduate Fellowship Honorable Mention
Dariya Sydykova, Cell and Molecular Biology
Christopher Riley, Biochemistry
William Parker, Chemistry
Elisa Novelli, Chemistry
Logan Myler, Cell and Molecular Biology
Rachel Lex, Cell and Molecular Biology
Ethan Leeman, Mathematics
Briana Indahl, Astronomy
Spencer Fox, Ecology, Evolution and Behavior
Whitney Fies, Chemistry
Tracy Burkhard, Ecology, Evolution and Behavior

NIH National Research Service Award Pre-Doctoral Fellows
Apollo Stacy, Microbiology
Stephanie Spielman, Ecology, Evolution and Behavior

IBM Ph.D. Fellowship
Hsiang-Fu Yu, Computer Science

Howard Hughes Medical Institute International Research Fellowship
Yoori Kim, Biochemistry

American Chemical Society Division of Analytical Chemistry Graduate Fellowship
Michael Cammarata, Chemistry

Taiwan Ministry of Education Fellowship
Geng-Min Lin, Chemistry
Fundacion Bancaria “la Caixa” Fellowship
Xavier Fernandez-Real-Girona, Mathematics

National Sciences and Engineering Research Council of Canada Fellowship:
Kum Shim, Ecology, Evolution and Behavior

Donald D. Harrington Fellow
Sarah Barfield, Ecology, Evolution, and Behavior

NIH K99 Pathway to Independence Fellowship
Ben Lovely, Molecular Biosciences

NIH National Research Service Award Post-Doctoral Fellows
Ashley Tucker, Molecular Biosciences
Joseph Boll, Molecular Biosciences
Benjamin Liebeskind, Center for Systems and Synthetic Biology

NSF Plant Genome Research Initiative Postdoctoral Fellowship
John Lovell, Integrative Biology

American Cancer Society Postdoctoral Fellowship
Todd Triplett, Molecular Biosciences

Deutscher Akademischer Austauschdienst Postdoctoral Fellowship
Matthias Sitte, Physics

Hubble Fellowship in Astronomy
Andrew Mann, McDonald Observatory
Freshman Research Initiative
The Freshman Research Initiative (FRI) is one of the educational gems of the College and the University. With leadership from Principal Investigator Andrew Ellington and funds from the Keck Foundation, the College’s Texas Institute for Discovery Education in Science (TIDES) is inaugurating technology streams in FRI. Technology streams will draw upon the research infrastructure of the University to teach undergraduates cutting-edge technology skills, working with centers, institutes, and facilities across campus to offer students diverse, translational problems to tackle. Technology streams will also incorporate project ideas driven by industry needs in collaboration with industry scientists and entrepreneurs to expand the career options, career pursuits, and entrepreneurship of CNS undergraduates.

Other areas of FRI expansion include the establishment of the Accelerated Research Initiative for transfer students and the launch of four new research streams: Microorganisms in Bees and other Insects led by Nancy Moran, Computational Materials led by Graeme Henkelman and Gyeong Hwang, Hijacking Microbial Factories for Synthetic Biology led by Jeffrey Barrick, and System Security led by Calvin Lin and Mohit Tiwari.

This year, TIDES also hosted the largest Undergraduate Research Forum to date with 279 undergraduates, 191 research internship posters, 24 research stream posters, and 22 awards totaling over $10,000. TIDES administered 142 Summer Undergraduate Research Fellowships and 30 academic year fellowships and is actively collaborating on the design of innovative learning spaces in the Welch Hall renovations.
Major Undergraduate Awards

**Barry M. Goldwater Scholar**

**Brendan Chou**

As an undergraduate biochemistry major working in the lab of Assistant Professor Lydia Contreras (Department of Chemical Engineering), Chou studied a type of bacteria called extremophiles which can withstand heavy exposure to radiation. The team identified molecules called sRNAs related to this radiation resistance and published two scientific papers in peer-reviewed journals that Chou co-authored. The work might lead to ways to protect cancer patients from the side effects of radiation therapy or ways to engineer microbes that can clean up nuclear waste. Chou is an alumnus of and a former mentor in the Freshman Research Initiative, and he founded and was president of an undergraduate science journal club, which exposed students to recent advances across scientific disciplines.

**NSF Graduate Research Fellowships Program Fellow**

**Eric Dawson**

Eric Dawson, a Dean’s Honored Graduate in Biology, conducted research in computational biology with Professor Claus Wilke beginning in his freshman year and culminating in an honors thesis, “Human MicroRNAs Exhibit Two Distributions of Expression Within and Across Cancer Samples.” Dawson’s work in the Wilke lab led to three peer-reviewed publications. He spent two summers at the Ontario Institute for Cancer Research in Toronto, Ontario, where he helped to develop tools to explore the underlying molecular pathology of tumors using next-generation sequencing data. Dawson also worked as a research assistant at the Texas Advanced Computing Center where he led the Student Cluster Challenge Team to an unprecedented third victory in 2014. After graduating in the spring, Dawson entered a collaborative Ph.D. program with the University of Cambridge and the National Institutes of Health through the NIH Oxford-Cambridge Scholars Program, where he is exploring genomic features that contribute to hereditary cancer risk.

**NSF Graduate Research Fellowships Program Fellow**

**Nalin Ratnayeke**

Nalin Ratnayeke, a Dean’s Honored Graduate in Biology and Physics, began doing research in biophysics in Assistant Professor Vernita Gordon’s lab in 2011. Examining bacterial antibiotic resistance, Ratnayeke came across a novel phenomenon impacting the survival rate of antibiotic-resistant mutants in the population. Through a combination of microbiological experiments and theoretical modeling, he characterized the causative agent of this phenomenon, as well as its biological and physical characteristics. This work led to two peer-reviewed publications and was the basis of his honor’s thesis, “Microbial Population Structure Impacts Antibiotic Resistance.” Ratnayeke earned one of the University Co-op/George H. Mitchell Awards for excellence in research for this work. He served as the chair of the Dean’s Scholars Council and was instrumental in establishing a new Dean’s Scholars forum, ResULTS, where students meet to present their research to one another, leading to his recognition with the Alan Kaylor Cline Scholarship. After graduation, Ratnayeke entered the Ph.D. program in Chemical and Systems Biology at Stanford University.
Graduating Class of 2015

2014–15 Fall & Spring Graduates

Total Number of Graduates 1,960
Male/Female 45%/55%
Underrepresented Minority 22%
Transferred into CNS 23%
Internship 43%
Participated in FRI 23%
Graduated in 4 Years 63%

*Self-reported demographic data comes from the graduates who completed the graduation survey

Self-Reported Pathways after Graduation

<table>
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<th>Seeking / Secured a Job</th>
<th>BS</th>
<th>BSA/BA</th>
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<tbody>
<tr>
<td>55%</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>Health Professions School</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Graduate School</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Other (military, Peace Corps, etc.)</td>
<td>8%</td>
<td>11%</td>
</tr>
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</table>

Undergraduate Degrees Awarded in 2014–15
STRATEGIC GOALS UPDATES: PROMOTING WORLD-CHANGING DISCOVERY
Welch Hall Renovation

Renovating Welch Hall is the first of several high-impact reconstruction projects necessary to achieve the College’s long-term strategic goals in research and education:

**Significant funding secured:** The Texas Legislature approved $75 million for the Welch Hall renovation in the form of tuition revenue bonds. Additional funding will come from philanthropy and institutional funds.

**Phase I renovations underway:** Renovations in the 1929 West Wing began in June 2015 and are scheduled for completion in August 2016. The renovated space will include two new Freshman Research Initiative labs, analytical teaching laboratories, research laboratories and experimental classrooms designed to provide a learning environment for the twenty-first century.

**Phase II planning initiated:** Construction of the multi-stage renovation to the 1978 wing is scheduled to begin in spring 2017 and should be completed in 2020. This renovation will include all new mechanical systems, updated and modernized research and teaching labs, and a main-level community space, helping to create a new identity for Welch Hall.
SPONSORED RESEARCH TRENDS

Distribution of 2014–15 CNS External Funding

$97.99 Million

- National Institutes of Health 26%
- National Science Foundation 20%
- Department of Defense 11%
- Non-Profit 11%
- Department of Energy 10%
- Foundation 9%
- State 6%
- Other 7%
- State 6%

External Research Expenditure by Department

<table>
<thead>
<tr>
<th>UNIT</th>
<th>2014–2015*</th>
<th>Average per Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroscience</td>
<td>$11,735,792</td>
<td>$469,432</td>
</tr>
<tr>
<td>Statistics &amp; Data Sciences</td>
<td>$818,294</td>
<td>$409,147</td>
</tr>
<tr>
<td>Molecular Biosciences</td>
<td>$25,736,357</td>
<td>$402,131</td>
</tr>
<tr>
<td>Chemistry</td>
<td>$10,596,054</td>
<td>$365,381</td>
</tr>
<tr>
<td>Marine Science</td>
<td>$5,106,288</td>
<td>$340,419</td>
</tr>
<tr>
<td>Physics</td>
<td>$14,852,172</td>
<td>$291,219</td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td>$2,711,026</td>
<td>$271,103</td>
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<tr>
<td>Integrative Biology</td>
<td>$7,887,292</td>
<td>$231,979</td>
</tr>
<tr>
<td>Computer Science</td>
<td>$7,653,506</td>
<td>$186,671</td>
</tr>
<tr>
<td>Astronomy</td>
<td>$3,880,769</td>
<td>$184,799</td>
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<tr>
<td>Mathematics</td>
<td>$3,588,534</td>
<td>$69,010</td>
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<tr>
<td>Human Dev/Family Sciences</td>
<td>$702,049</td>
<td>$54,004</td>
</tr>
<tr>
<td>Textiles &amp; Apparel</td>
<td>$148,267</td>
<td>$37,067</td>
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<tr>
<td><strong>Totals:</strong></td>
<td><strong>$95,416,400</strong></td>
<td><strong>$264,311.36</strong></td>
</tr>
</tbody>
</table>

*Actual Research Expenditures from 9/1/14 through 08/12/15
SELECTED HIGH-PROFILE PUBLICATIONS


STRATEGIC GOALS UPDATES: CREATING IMPACT
**Visualizing Science**

For the second year, the College increased the visibility of scientific discovery on campus through its Visualizing Science project. CNS students, faculty and staff submitted unique images from their research that capture the beauty and wonder of science.

Amazing images were unveiled as winners at the College of Natural Sciences Town Hall, and six were prominently displayed as the main artwork in the UT Tower’s ground-floor thoroughfare, in the grand hallway in Welch Hall, and in the entry area of the Robert Lee Moore Building.

Brad J. Gemmell, Ph.D.
Marine Science

Martin Codrington, Ph.D.
Physics

Jeffrey N. Li
Biochemistry
Cameron Peebles
Chemistry

Marijn Heule, Ph.D.
Center for Information Security

Hyunbae Park, Paul Shapiro,
Junhwan Choi
Astronomy
Publicizing Discoveries

College of Natural Sciences media tracking indicates that media outlets featured CNS faculty experts, staff, and students in their coverage nearly 700 times over the course of the year.

Highlighted coverage in the national media:

“Competition Drives Quick Evolution of Lizard’s Feet”
*New York Times*
Yoel Stuart (post-doc), Integrative Biology

“Tinder, the Fast-Growing Dating App, Taps an Age-Old Truth”
*New York Times*
Paul Eastwick & Lucy Hunt (graduate student), Human Development and Family Sciences

“In Texas, Beef Council Hopes to Rope In a Younger Crowd”
*New York Times*
Jeanne Freeland-Graves, Nutritional Sciences

“The Surprising Power of an Electric Eel’s Shock”
*New York Times*
Harold H. Zakon, Neuroscience and Integrative Biology

“In Cleveland, Young and Old Keep Tempo of Life”
*New York Times*
Karen Fingerman, Human Development and Family Sciences

“Crossbreeding Could Help Coral Survive Warming Waters”
*New York Times*
Mikhail Matz, Integrative Biology

“For Couples, Time Can Upend the Laws of Attraction”
*New York Times*
Lucy Hunt & Paul Eastwick, Human Development and Family Sciences

“Texas Scientist With a Thing for Longhorns”
*New York Times*
David Hillis, Integrative Biology

“New Earth-Like Planet Discovered by NASA’s Kepler Space Telescope”
*Wall Street Journal*
McDonald Observatory research
“Google Snubs Robotics Rivals, Pentagon”  
*Wall Street Journal*  
Peter Stone, Computer Science  

“How Anti-Vaccination Trends Vex Herd Immunity”  
*Wall Street Journal*  
Lauren Meyers, Integrative Biology  

“When Everything You Think about Aging May be Wrong”  
*Wall Street Journal*  
Karen Fingerman, Human Development and Family Sciences  

“Ebola Infections with No Symptoms Are Possible and They Could Help Fight the West Africa Epidemic”  
*Washington Post*  
Lauren Meyers, Integrative Biology  

“BPA Alternative Disrupts Normal Brain-Cell Growth, Is Tied to Hyperactivity, Study Says”  
*Washington Post*  
George Bittner, Neuroscience  

“Scientists Give Yeast Human Genes to Show How Much We Have in Common”  
*Washington Post*  
Edward Marcotte, Molecular Biosciences  

“Understanding the Dark Side of Physics”  
*NPR*  
Steven Weinberg, Physics  

“Like Adrian Peterson, Majority of U.S. Parents Use Physical Discipline”  
*NPR*  
Elizabeth Gershoff, Human Development and Family Sciences  

“Worms Know What’s Up -- And Now Scientists Know Why”  
*NPR*  
Jon Pierce-Shimomura, Neuroscience  

“You and Yeast Have More In Common Than You Might Think”  
*NPR*  
Edward Marcotte, Molecular Biosciences
“10 Questions for Allen Bard, Father of Modern Electrochemistry”
Science Friday
Al Bard, Chemistry

“How to Check if Your Universe Should Exist”
Wired Magazine
Steven Weinberg, Physics

“Scientists Identify Network of Genes that May Predict Alcohol Dependence”
Fox News
Adron Harris, Neuroscience

“What Obama’s Drilling Bans Mean for Alaska and the Arctic”
National Geographic
Ken Dunton, Marine Science
IMPROVING OUR COLLEGE FROM WITHIN
CNS Staff Council
The CNS Staff Committee exists to facilitate enhanced communication and collaboration between CNS departments, improve the training and educational opportunities provided to CNS staff, and bolster the morale and culture of CNS staff members.

The College’s Staff Committee completed its inaugural year, meeting regularly to identify and address areas of need. Hallmarks of the year included a college-wide survey to assess staff requests and the creation of a CNS-specific web resource for staff. The committee’s annual report can be found on its website: https://cns.utexas.edu/staff-committee

2014–2015 CNS Staff Committee Membership
Dan Machold – Senior Software Engineer – Computer Science (Chair)
Liz Wyckoff – Research Scientist – Molecular Biosciences (Co-Chair)
Norma Hernandez – Senior Academic Advisor – Biology (Secretary/Treasurer)
Ana Aguilar – Facility Manager – Culture Collection of Algae
Gary Thomas – Technical Staff Supervisor – Physics
Liz Flynn-Whittenton – Administrative Associate – Computer Science
Annette Hairston – Academic Advising Coordinator – UTeach Science Program
Katherine Reynolds – Project Manager – CNS Research & Facilities
Bill Wren – Public Affairs Specialist II – Astronomy
Raluca Gearba – Research Scientist Associate – Center for Nano Molecular Science
Mike McIntosh – Systems Administrator I – CNS Information Technology Services

CNS Staff Awards
**President’s Outstanding Staff Awards**
Barbara Wand James, Charles A. Dana Center for Science and Mathematics Education
Danielle Renee Nestler, Department of Chemistry
David Steadman, CNS Communications and Public Affairs
Beatrice Limon, Marine Science Institute
Etta D. Sproul-Parrott, McDonald Observatory
Matthew D. Shetrone, McDonald Observatory

**CNS Staff Awards**
Sasha Schellenberg, Department of Statistics & Data Sciences – New Employee
Kelley Quinney, Department of Astronomy – Supervisor
Jon Howard, Advising Center, Mathematics, Physics, and Astronomy – Staff Excellence
Tamra Rogers, Biology Instructional Office – Staff Excellence
Angela Missildine, Department of Chemistry – Staff Excellence
Hanshin Lee, McDonald Observatory – Staff Excellence
Faculty Teaching Workshops
Research on how people learn shows that teaching using active learning is more effective than just lecturing. Texas Institute for Discovery Education in Science is working actively with CNS faculty to promote the adoption of proven active learning strategies across the College. In 2014–15, TIDES launched three new professional development opportunities to meet the diverse needs of CNS faculty:

**Scientific Teaching Workshop Series.** These monthly working sessions drew approximately 30 faculty to learn active-learning strategies for large classrooms, explore innovative assessment ideas, and identify ways to facilitate group learning with a diverse group of students.

**National Academies Summer Institute on Undergraduate Education.** A team of Molecular Biosciences faculty participated in a weeklong intensive session on effective STEM teaching. The faculty team will collaborate with TIDES to implement summer institutes on campus in coming years to engage many more faculty across the College.

**One-on-one and small-group consultations.** TIDES provided guidance to individual faculty on effective teaching, including how to identify exam questions that best measure student learning, how to integrate research projects into large-enrollment lecture courses, and how to design courses from scratch to maximize student engagement and learning.
A CNS College Budget Council (CBC) formed this year to increase the level of collaborative decision-making in the strategic deployment of College resources and help meet and enhance the goals of College units. Each department chair (along with four major units within the Dean’s office) presented their strategic priorities and budget needs to the CBC. These presentations provided departments with an opportunity to showcase their initiatives and request additional funding in support of these priorities. In 2014–15, the CNS Budget Council deployed available discretionary funds to support several areas of need, including staff merit increases and maintenance and operations funds in several departments. Dean Hicke also approved the CBC’s request to increase annual teaching assistant stipends in 2015–16. Department presentations will occur annually each fall.
PHILANTHROPIC GIVING
FUNDRAISING IN THE COLLEGE

Annual Philanthropic Gifts

Department/Unit Fundraising Totals
Gifts of all sizes matter to the college and have the power to make a difference in the lives of the people, programs, and mission of CNS. Alumni, friends, corporate and foundation partners made many notable gifts to the College of Natural Sciences, and a sampling follows.

**Astronomy**

**Drs. Joan and Herman Suit** – Renewed three-year pledge of $150,000 in support of the *Herman and Joan Suit Professorship in Astrophysics* held by Dr. Karl Gebhardt.

**Chemistry**

**Mrs. June Waggoner** – $25,000 matching gift in support of Dr. Steve Martin’s HornRaiser project focused on Alzheimer’s research. Dr. Martin holds the Virgil Waggoner Chair in Chemistry and Mrs. Waggoner surprised him by matching his crowd-funding success.

**Computer Science**

**Mr. Leonard Huber** – $20,000 gift, which will be matched by the Kodosky Challenge Grant, to establish the *Leonard E. Huber Endowed Scholarship in Computer Science* for Turing Scholars.

**Facilities Renovations**

**The Estate of Elizabeth Sauer** – Realized planned gift valued at $500,000 in honor of Mrs. Judy Sauer, Biology 1964, which enabled the build-out of Biological Sciences Core Facilities within the Faulkner Nanotechnology Building.

**Integrative Biology**

**Dr. James Siedow** – Documented a $500,000 gift through his estate to support undergraduate research in his alma mater undergraduate department. As Vice President for Research at his current university, Dr. Siedow values the impact that research has on undergraduate students.

**Mathematics**

**Mrs. Judy W. Sargent** – Documented a $100,000 unrestricted gift through her estate to the Department of Mathematics as a tribute to her days as a UT math student.

**McDonald Observatory**

**Mr. and Mrs. Robert and Annie Graham** – Four-year, $1,000,000 pledge in support of the McDonald Observatory’s partnership in the Giant Magellan Telescope.
Molecular Biosciences

**Mr. Carl Knowlen** – Documented a $50,000 unrestricted gift through his estate to create the *Carl Knowlen Endowed Excellence Fund in Molecular Biosciences* in recognition of the interdisciplinary research happening within this new department.

Marine Science

**Mrs. Mary A. Abell** – Stock gift of $139,000 to increase the value of the already established *Abell Family Fund for Graduate Student Support* in Marine Science.

Physics

**Dr. and Mrs. Mike and Jane Downer** – Fourth annual gift of $25,000 to increase the value of the *Jane and Mike Downer Endowed Presidential Fellowship in Laser Physics in memory of Glenn Bryant Focht* which supports graduate students in the department.

Statistics and Data Sciences

**Netspend Corporation** – Gift of $20,000 to help support a graduate student in Statistics and Data Sciences as part of research partnership.

School of Human Ecology

**The Gurwitz Families** – Family commitment of $75,000 to create the *Julian Gold and Gail and Bob Gurwitz Endowed Excellence Fund in Textiles & Apparel* in support of the students and the activities of the Textiles and Apparel program.

Texas Institute for Discovery Education in Sciences

**Mr. and Mrs. Stoney and Stacy Barton** – $50,000 gift in support of the Freshman Research Initiative Student Summer Fellowship program. Inspired by Mr. Barton’s own hands-on research experience as a chemist, this gift supported FRI students’ full-time research during summer 2015.
COLLEGE BUDGET AND ENROLLMENT
2014–15 College Budget

The College has been operating at an instructional deficit of approximately $5–6 million each year. The total budget available for instruction in 2014–15 was $16.1 M. Beginning in 2015–16, the College will receive a permanent increase of $4 million in instructional funding.

2014–15 Instructional Budget

Instructional costs are expected to rise in 2015–16 with the arrival of our largest entering freshman class, a college-wide increase in teaching assistant stipends and our commitment to a merit pool for non-tenure track faculty. Estimated deficit for 2015–16 is $2.4 million.
ENROLLMENT TRENDS

Growth in CNS Majors and Numbers of Students Taught

Number of CNS Undergraduate Majors (3-Year History)
College Enrollment by Major in 2014–15

Seats Taught by Department – 3 Year History

Graphs showing college enrollment by major in 2014–15 and seats taught by department from 2012/13 to 2014/15.
Total Numbers of Graduate Students (Ph.D. and Masters) in CNS

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COLLEGE BUDGET AND
ENROLLMENT