

School of Natural Sciences
All Hands Faculty and Staff Meeting
Dean Betsy Dumont
October 4, 2018

Welcome to our New Physics Faculty!

Kinjal Dasbiswas
Assistant Professor



Daniel Beller
Assistant Professor

Physics: Notable Events and Accomplishments

UC Merced hosted APS Far West Section

The 2017 meeting of the American Physical Society's Far West Section was held at UC Merced on Nov. 3-4, 2017. Conference Chair: **Sayantani Ghosh**

Numbers: **196** registered attendees; **53** talks; **52** posters

Plenary: Frances Hellman (Dean, Math and Physical Sciences, Berkeley), Andrea Ghez (Physics and Astronomy, UCLA), KC Huang (Bioengineering, Stanford), Andrei Derevianko (Physics, Nevada)

Banquet symposium: Physics of Toys – Tadashi Tokieda (Stanford)

Physics Students Win National Recognition

The University of California Merced chapter of the Society of Physics Students (SPS) has won an Outstanding Chapter Award from the SPS National Office. This is the first time the chapter has been recognized for its excellence as a top-tier student-led physical sciences organization, a designation given to fewer than 10 percent of all SPS chapters at colleges and universities in the United States and internationally.

Physics: Recent Articles and Grants

- *Nature Communications* paper on coupling between graphene-based mechanical resonators (Luo... **Lin Tian**, G.P Guo)
- *Nature Physics* paper on topological kinematics of origami metamaterials (**Bin Liu**,...,Itai Cohen)
- *Science* paper on measurement of helicity and its dynamics in vortex tubes (Scheeler...,Dustin Kleckner, Irvine)
- *Science Advances* paper on frustration-induced phases in migrating cell clusters (Katherine Copenhagen,..., **Ajay Gopinathan**)
- \$1.4 million grant from the U.S. Department of Energy Solar Energy Technologies Office (SETO) to develop solar-thermal desalination technologies. Also \$816k from California Energy Commission for cooling and heating and \$1 million from ARPA-E for Solar PVC systems (**Roland Winston**)
- NSF-CMMI grant on swimming agents in complex fluid flows, \$390k; (**Kevin Mitchell**); NSF-DMR grant on self-mixing active fluids, \$625k; (**Linda Hirst, Kevin Mitchell**).
- DoD HBCU/MI Instrumentation/equipment program grant for a combined atomic force and con-focal microscopy system for low temperatures (4K-300K) and high magnetic fields (0-9T). \$600k (**Michael Scheibner**)
- Department of Energy's National Nuclear Security Administration (\$900k) and Department of Energy Office of Basic Energy Sciences (\$1.58 million); (**David Strubbe** in collaboration w/ theoretical chemistry)

Physics: Graduate Alumni Placements

- **Postdocs**

- Katie Copenhagen (Gopinathan Group)- Princeton University
- Nathan Melton (Hirst group)- Lawrence Berkeley National Lab – Advanced Light Source
- Sulimon Sattari (Mitchell group)- Hokkaido University
- Mekena Metcalf (Chien group) – Sandia National Lab

- **Industry**

- Makiko Quint (Ghosh/Hirst group) – KLA-TenCor instruments
 - Qiaochu Li (Xu group) – Apple
 - Josh Casara (Scheibner group) - LAM Research
 - Cyprian Czarnoki (Scheibner group) - Decision Science

- **Post postdoc jobs**

- David Ando (Gopinathan Group) – Amazon Research (following postdoc at Lawrence Berkeley National Lab)
- Andrea Rodarte (Ghosh/Hirst group)- Staff Scientist at Sandia National Lab (following postdoc at UCSD)
- Ron Pandolfi (Hirst group)- Staff Scientist at Lawrence Berkeley National Lab – Advanced Light Source (following postdoc there)

Welcome to our New CCB Faculty!

Aurora Pribram-Jones
Assistant Professor
Ph.D. U.C. Irvine



Shahar Sukenik
Assistant Professor
Ph.D. Hebrew University

Chemistry and Chemical Biology: Recent Accomplishments

- **Andy LiWang** published a full length research article in Science. Also received \$2.9M in grants from NIH, Army, and AFOSR.
- **Anne Kelley** is this year's chair of the APS Division of Laser Science.
- **David Kelley** received a \$350,000 DOE grant.
- **Hrant Hratchian** received a Hellman Faculty Fellowship.
- **Erik Menke** and **Hrant Hratchian** received CETL teaching fellowships.
- **Christine Isborn, Hrant Hratchian,** and **Ben Stokes** placed postdocs in tenure-track faculty positions.

Chemistry and Chemical Biology: Recent Accomplishments

- **Erik Menke with Christine Isborn, Hrant Hratchian, Ben Stokes, and J. Michelle Leslie** received a \$1.5M NSF grant to improve lower-division chemistry teaching
- **Ryan Baxter** received an NSF CAREER Award
- **Tao Ye**, with collaborator Ashlie Martini in Engineering, received a NSF grant
- **Hrant Hratchian and Christine Isborn** both recently had papers selected as “Editor’s Picks” in the Journal of Chemical Physics
- **Anne Myers Kelley** became chair of the Division of Laser Science of the American Physical Society, and was named a Fellow of the Optical Society of America

Chemistry and Chemical Biology: Recent Accomplishments

- **Anne Myers Kelley** was one of 66 distinguished female scientists whose research was highlighted by the Journal of Physical Chemistry in its [Marie Curie Virtual Issue](#)
- **Andy LiWang** had his NIH R01 grant renewed for \$1.3M in 2018 and also received a supplement of \$123K for new equipment
- **Andy LiWang** gave a Presidential Symposium talk at the 2018 meeting of the Society for Research on Biological Rhythms
- **Aurora Pribram-Jones** is a co-investigator on a \$2.9M DOE NNSA Minority Serving Institutions Partnership Program grant establishing the Consortium for High Energy Density Science. The grant, with David Strubbe in Physics as the UCM lead, will bring over \$900K in research funding to UC Merced

Molecular Cell Biology: Recent Accomplishments

- **Anna Beaudin** - PEW Charitable trust
- **Michael Cleary** - NIH National Institute of Mental Health R21 grant, UC Cancer Research Coordinating Committee grant
- **Aaron Hernday** – NIH NIAID R15 grant (final NOA pending)
- **Katrina Hoyer** – NIH National Heart, Lung, & Blood Institute R15 grant & The Honorable Betty Dawson & Mr. Robert Haden Research Gift
- **Emilia Huerta-Sanchez** - UC Mexus, NIH NIGMS MIRA R35 award

Molecular Cell Biology: Recent Accomplishments

- **Kirk Jensen** - NIH National Institute of Allergy and Infectious Diseases R01 and R15 grants & Hellman Fellowship
- **Jennifer Manilay, Laura Beaster-Jones, Marcos Garcia-Ojeda** – HHMI Inclusive Excellence grant
- **Clarissa Nobile** – 2 NIH National Institute of Allergy and Infectious Diseases R21 grants, NIH NIGMS MIRA R35 grant, UC-MRPI, & Pew Scholar Award

Molecular Cell Biology: Recent Accomplishments

- **Rudy Ortiz** – USDA National Institute for Food & Agriculture grant, Almond Board of California grant, and Post-doc's K99 award
- **Nestor Oviedo** - UCOP grant
- **Ramendra Saha** - UCOP & NIH NIEHS R01 grants
- **Stephanie Woo** - Society for Developmental Biology Innovation grant
- **Fred Wolf** – NIH NIAAA R21 & Genentech contract
- **Maria Elena Zoghbi** – NIH NIGMS R15 grant

Welcome to our New LES Faculty!

Gordon Bennett
Assistant Professor
Ph.D. U.C. Berkeley



Sora Kim
Assistant Professor
Ph.D. U.C. Santa Cruz

Welcome to our New LES Faculty!

Jennifer Pett-Ridge
Adjunct Professor
Ph.D. U.C. Berkley



Rebecca Ryals
Assistant Professor
Ph.D. U.C. Berkeley

Life and Environmental Sciences: Recent Accomplishments

- **J. Michael Beman** - UC MEXUS grant
- **Asmeret Asefaw Berhe**- UCOP Fellowship and NSF grant
- **Jessica Blois**-NSF CAREER Award
- **Michael Dawson** – Two NSF grants
- **Teamrat Ghezzehei** - UC Davis grant
- **Stephen Hart** - UC Natural Reserve System grant

Life and Environmental Sciences: Recent Accomplishments

- **Emily McTavish** – NSF grant
- **Emily Moran** – NSF EAGER grant and Sequoia Riverlands Trust grant
- **Peggy O'Day** - UC Sea Grant College Program grant
- **Rebecca Ryals** - VAUC The Bay Area Clean Water Agencies grant
- **Dan Edwards**- Yosemite Conservancy grant and UCOP fellowship
- **Sora Kim**- NSF Grants

Welcome to Our Applied Math New Faculty!

Changho Kim
Assistant Professor
Ph.D. Brown University



Camille Carvalho
Assistant Professor
Ph.D. Ecole Nationale de
Techniques Avancees

Welcome to Our Applied Math New Faculty!

Tommaso Buvoli
Visiting Assistant
Professor



Nicholas Knight
Visiting Assistant Professor
Ph.D. U.C. Berkley

Applied Mathematics: Recent Accomplishments

- **Organized two conferences (SIAM Student Chapter and Yosemite Fluids Meeting)**
- **9 out of 10 incoming graduate students are women**
- **3 promotions to full Professor and 1 to Associate Professor**
- **Harish Bhat - NSF grant**
- **Camille Carvalho - NSF grant (Arnold Kim, Shilpa Khatri)**

Applied Mathematics: Recent Accomplishments

- **Noemi Petra** – Two NSF grants
- **Marcia Roummel** - Lawrence Livermore National Laboratory and NSF grant (Suzanne Sindi)
- **Suzanne Sindi** - Department of Army Research and National Institute of General Medical Science
- **Mayya Tokman** - First 5 Merced County and award from King Abdullah University of Science and Technology

Update on Faculty Hiring

AY 2017-18 Searches

Unit	Rank	Status
CCB	Open (2 hires)	7/11/2018 - 10/15/2018; Chair, David Kelley
MCB	LPSOE	8/10/2018 - 10/01/2018; Chair, Jennifer Manilay
MATH	Open	9/1/2018 - 11/25/2018; Chair, Francois Blanchette
MATH	LPSOE	9/18/2018 – 01/07/2019; Chair, Lei, Yue
LES	Asst Professor	Pending Posting; Chair, Michael Beman

On hold for 2020

Unit	Rank	Recruitment Area
MCB	Assistant Professor	TBD
MCB	Assistant Professor	Physiology
MCB	Assistant Professor	Microbiology
CCB	Assistant Professor	Biochemistry/Biophysical Chemistry
Physics	Assistant Professor	Experimental Condensed Matter or Atomic Molecular & Optical Physics

Recap: AY 17/18 Work Groups

Academic Reorganization

- Gregg Camfield, (co-chair), Vice Provost for the Faculty
- Paul Maglio, (co-chair), Professor, School of Engineering
- Marjorie Zatz, Vice Provost and Dean, Graduate Division
- **Betsy Dumont, Dean, School of Natural Sciences**
- Jason Beaster-Jones, Associate Professor, AP Chair, SSHA
- **Hrant Hratchian, Assistant Professor, Member of Graduate Council**
- Rebecca Smith, staff, SSHA

Academic Planning

- Tom Peterson, (Co-chair), Provost and Executive Vice Chancellor
- Susan Amussen, (co-chair), Chair Academic Senate
- Elizabeth Whitt, Vice Provost and Dean, Undergraduate Education
- Haipeng Li, University Librarian
- Holley Moyes, Acting Dean, SSHA
- **Mike Colvin, Professor, CAPRA Rep**
- **Teamrat Ghezzehei, Associate Professor, Chair of Grad Council**
- Martha Conklin, Professor, Chair of SoE Executive Committee
- Sarah Depaoli, Associate Professor, Undergrad Chair for Psychology
- Alisha Kimble, Assistant Dean, Undergraduate Education

Budget Planning

- Veronica Mendez, (co-chair), Interim Vice Chancellor, Planning and Budget
- Kurt Schnier (co-chair), Professor, Vice Chair, Academic Senate
- Mark Matsumoto, Dean, School of Engineering
- **Sam Traina, Vice Chancellor, Office of Research and Econ Dev**
- Maria Tinoco, Dir Acad Budget & Policy
- Leroy Westerling, Associate Professor, Vice Chair Grad Council
- Anne Zanzucchi, LSOE/Chair of Undergraduate Council
- **Michael Scheibner, Associate Professor and Member of Committee on Research**
- Mukesh Singhal, Professor, Chair of CAPRA

Results of Work Groups

Academic Reorganization



Academic Departments!!!

Transition Oversight Council

- Betsy Dumont (Executive sponsor)
- Peggy O'Day (Dept Chair, LES)
- Marc Beutel (Grad Chair, ES)

- Ehsan Choudhry (Faculty Liaison)
- Jenna Allen (Assist VC of Fin and Admin)
- Jessica Duffy (Prog Mgr, Capital Projects)

Academic Planning



Academic Planning

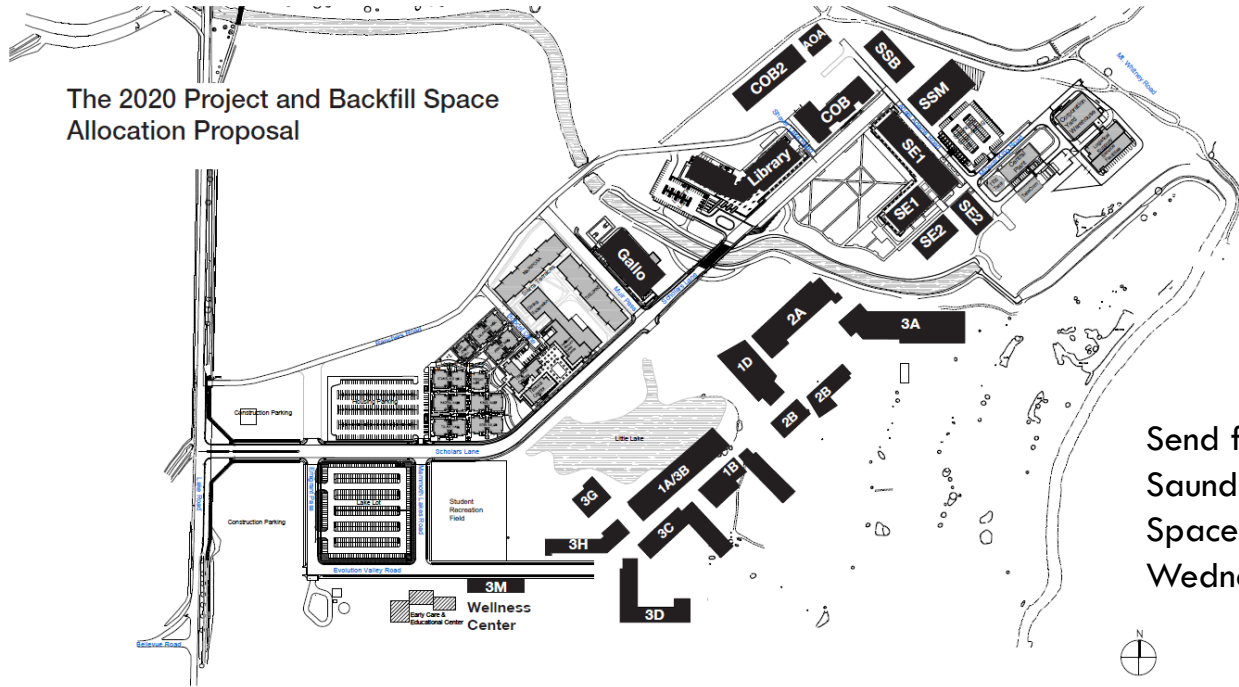
Budget Planning



Budget Implementation Team

- Kurt Schnier, (co-chair), Chair
Academic Senate
- Romi Kaur (Exec Director of
Financial Planning and Analysis)
- Jenna Allen (Assist VC of Fin and
Admin)

Update on 2020



The 2020 Project and Backfill Space Allocation Proposal

Send feedback to Maggie Saunders, Executive Director of Space Planning & Analysis, before Wednesday, October 17, 2018.

September 2018

Update on Campus Process Improvement

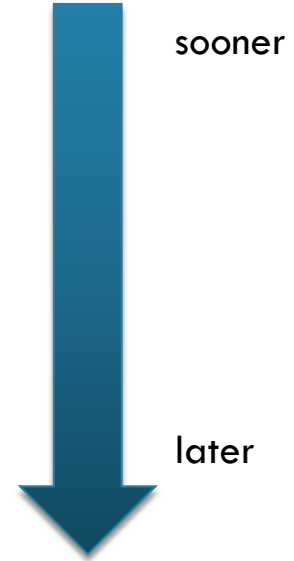
Room Reservation System – easily accessible, on-line

Procurement – new Amazon-like system

Travel – more user-friendly and accessible

Office of Research and Economic Development – assessment of processes; Deb Motton now AVC for Research

Financial System – software being investigated

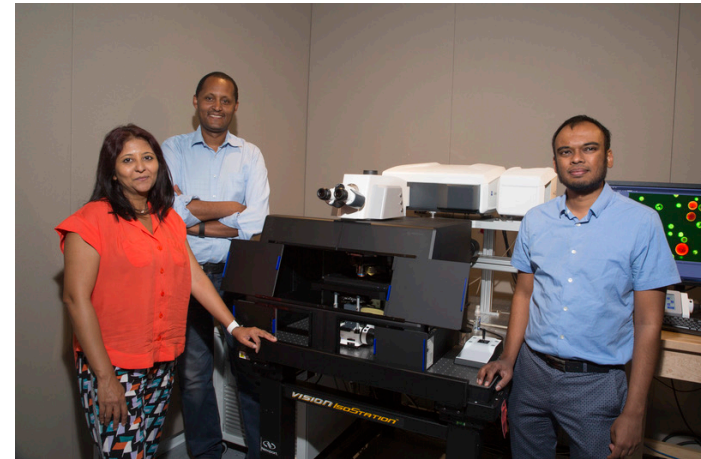


Broad Goals for Natural Sciences at UC Merced

1. Excellence in Research
2. Deliver a High-quality, Affordable Education
3. Advance Diversity, Equity, and Inclusion
4. Develop Relationships

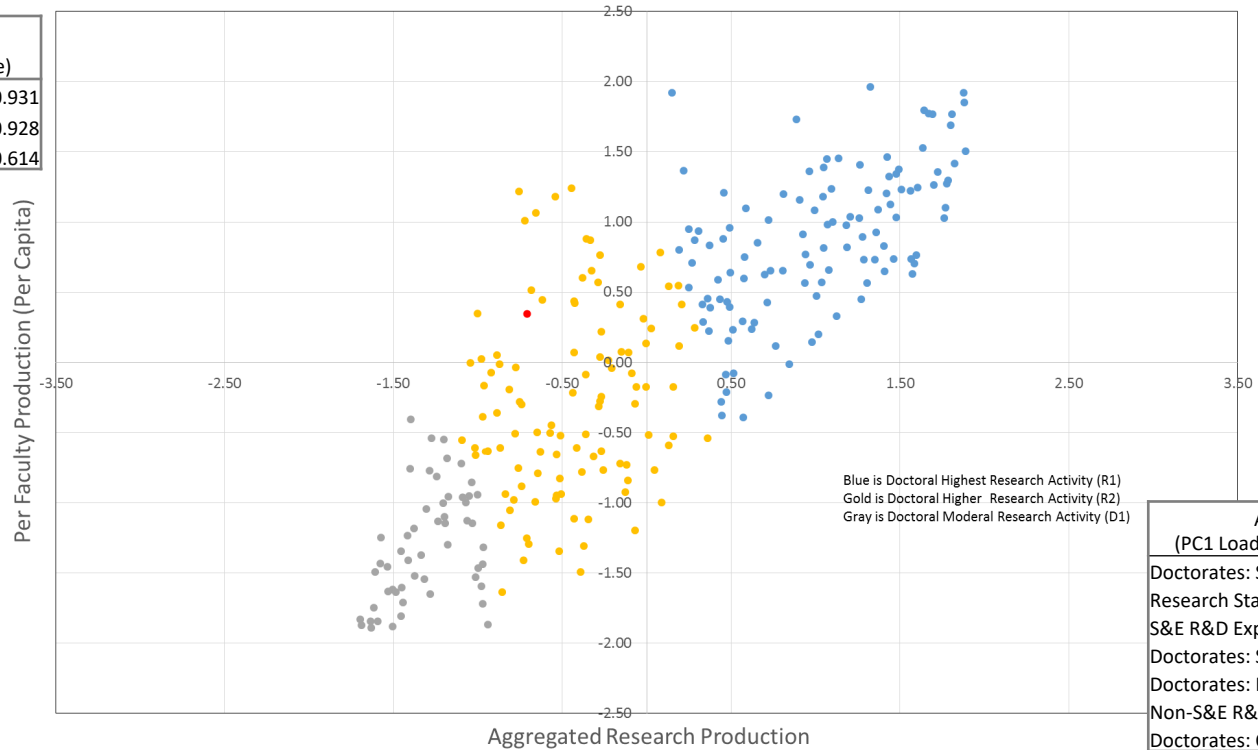
Faculty Excellence

- Balance academic breadth and depth.
- Anticipate new areas of research and explore them through Center and Institute grants.
- Nurture collaborations on and off-campus.
- Support – pre and post-award support, regular feedback & mentoring for early and mid-career faculty, mentorship in grant writing & management, writing groups, management & leadership training
- Embrace the benefits of diversity



Getting to R1

UC Merced Carnegie Placement



Per-capita analysis
 (PC1 Loadings; 71% of the total variance)

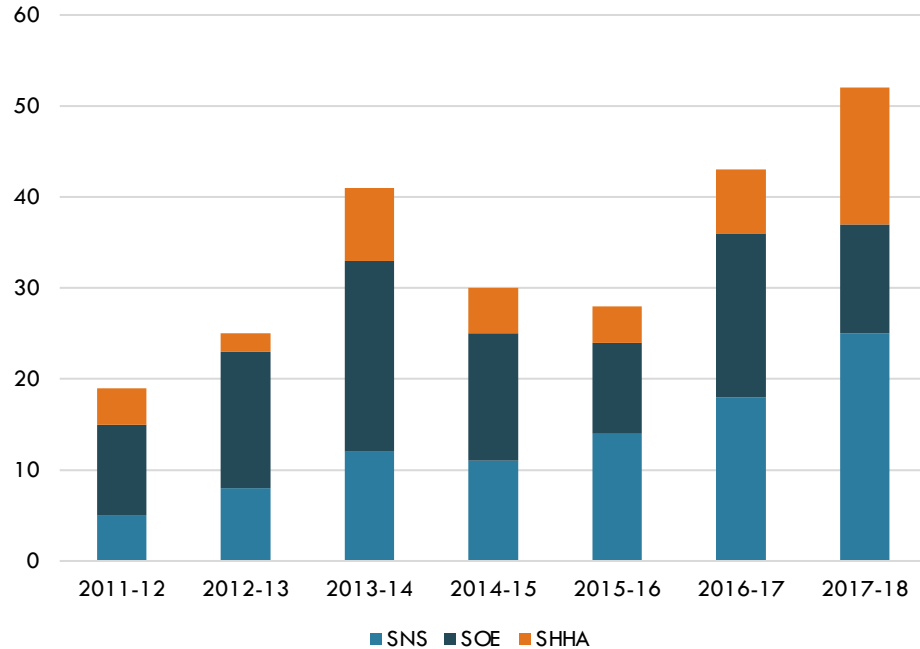
Per-capita S&E R&D Expenditures	0.931
Per-capita Research Staff	0.928
Per-capita Non-S&E R&D Expenditures	0.614

Aggregate analysis
 (PC1 Loadings; 70% of total variance)

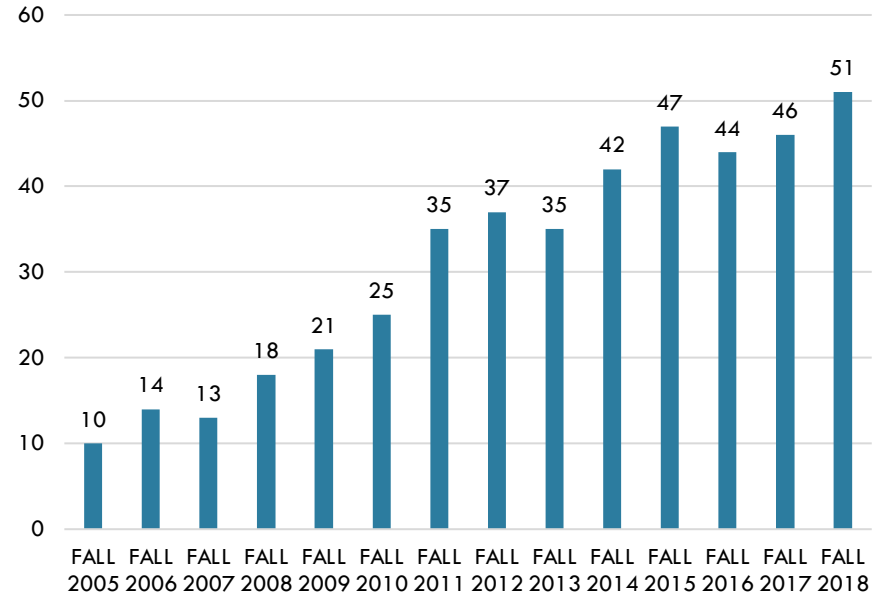
Doctorates: STEM	0.914
Research Staff	0.902
S&E R&D Expenditures	0.900
Doctorates: Social Sciences	0.873
Doctorates: Humanities	0.819
Non-S&E R&D Expenditures	0.791
Doctorates: Other Fields	0.616

PhDs and Postdocs

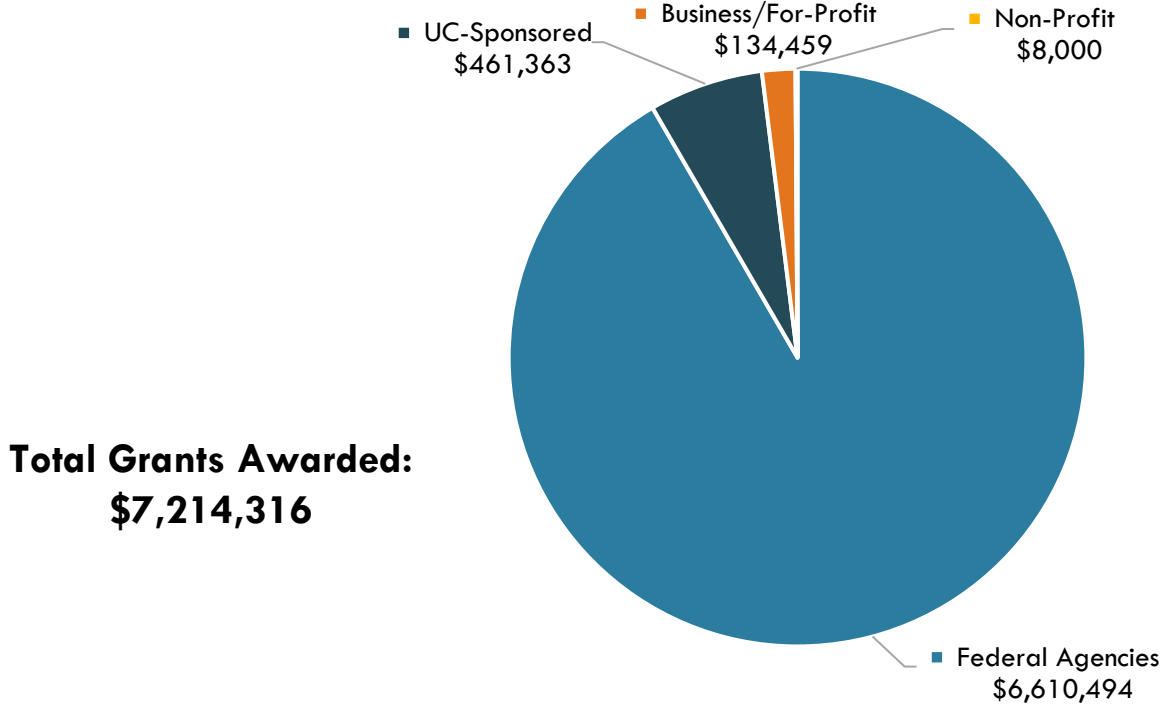
Doctoral Degrees Conferred



Postdoc Scholars and Professional Researchers

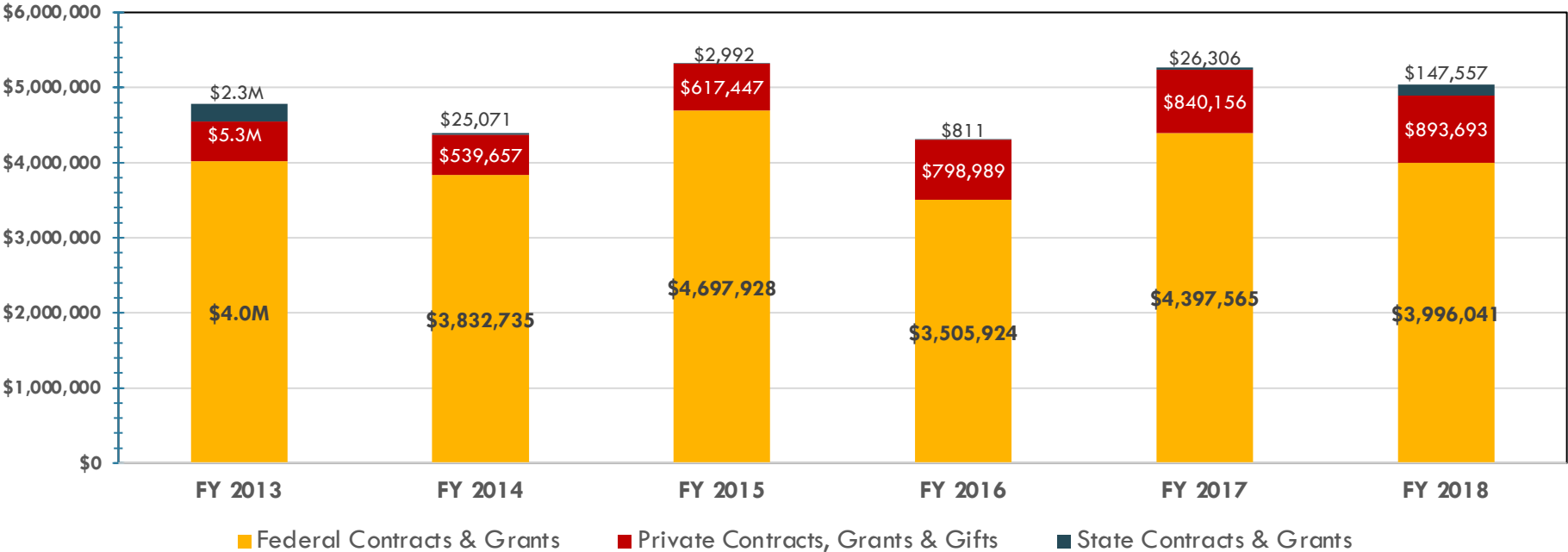


SNS New Awards by Sponsor Type – FY 18



SNS Research Expenditures

School of Natural Sciences Contracts & Grants Expenditures

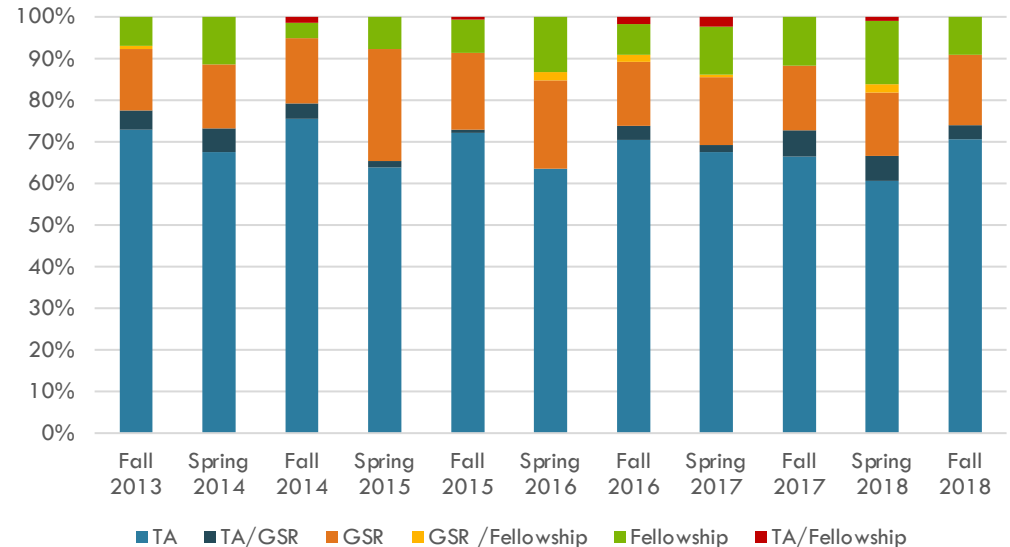


Building and Maintaining Excellence in Research

Graduate Education

- Top-notch research can't happen without top-notch graduate students and postdocs.
- Win – 5-year funding guarantees in PhD offer letters.
- Win – Our graduates are publishing and winning prestigious awards and fellowships.
- Draw – Proportion of non-TA funding is holding steady.

Graduate Student AY Funding

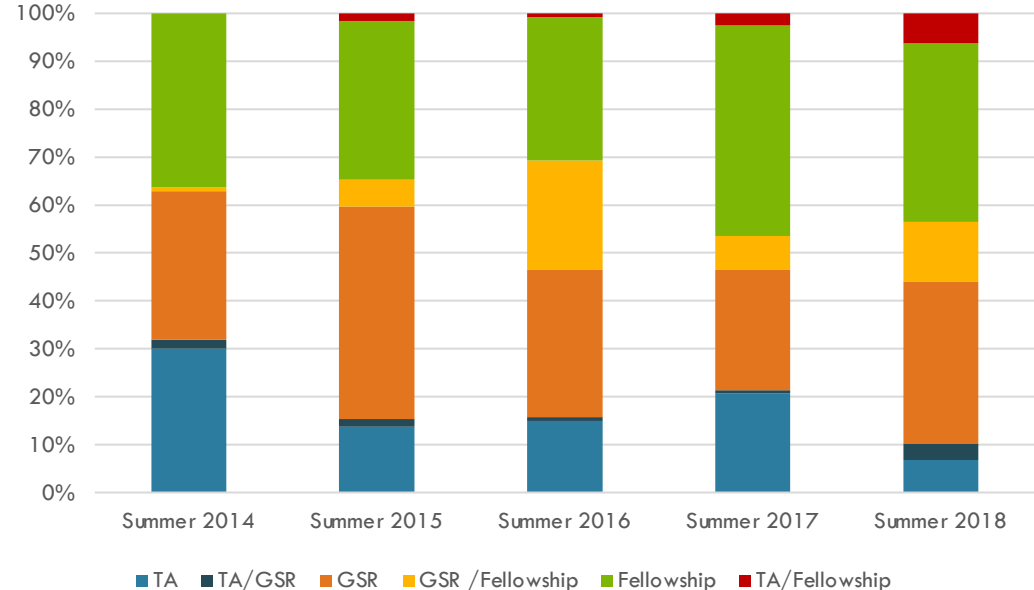


Building and Maintaining Excellence in Research

Graduate Education

Win – Proportion of summer GRs and Fellowships is on the rise.

Graduate Student Summer Funding



High-quality, Affordable Education



Critical thinking, problem solving, and communication.



Practical skill sets.



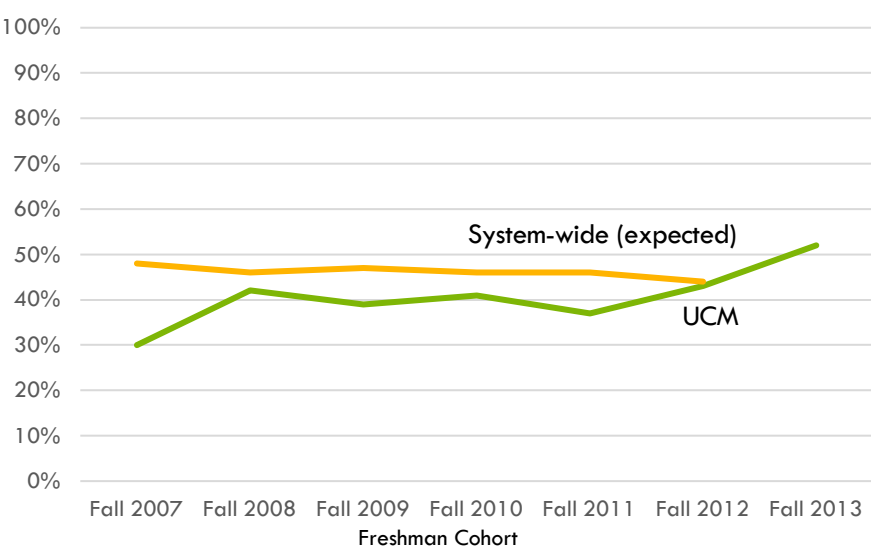
Contribute to a well-informed public.



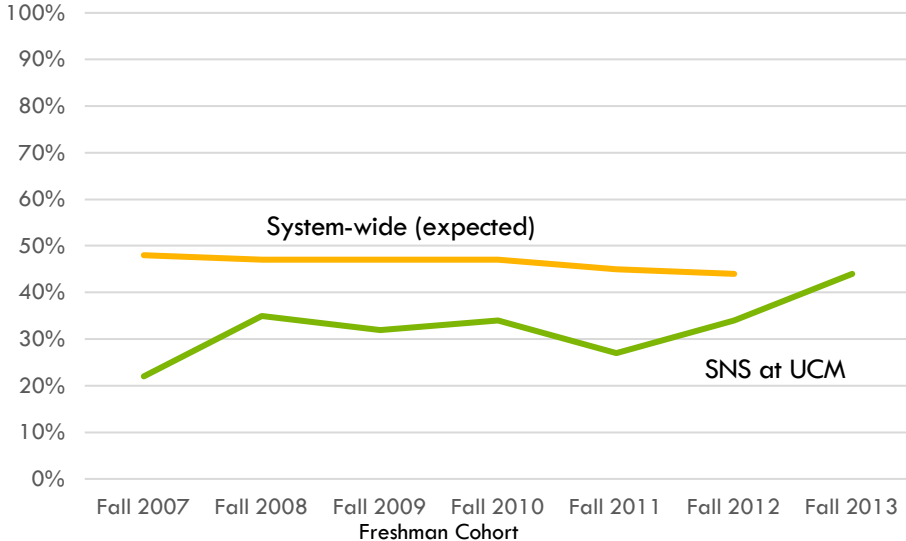
High-quality, Affordable Education

4-year Graduation Rates

Expected vs Observed SHAA & SoE



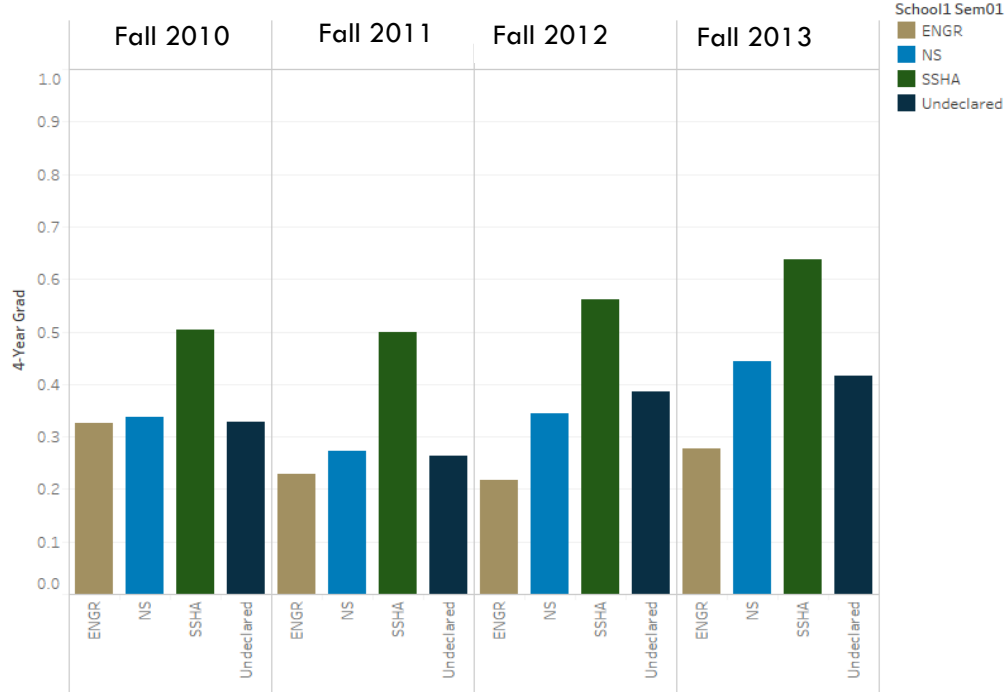
Expected vs Observed SNS



Expected graduation rates are calculated the subset of all UC students matched with UCM students for residence, gender, 1st generation status, race/ethnicity, Pell status, SAT scores, high school GPA, and college credit earned prior to matriculation.

High-quality, Affordable Education

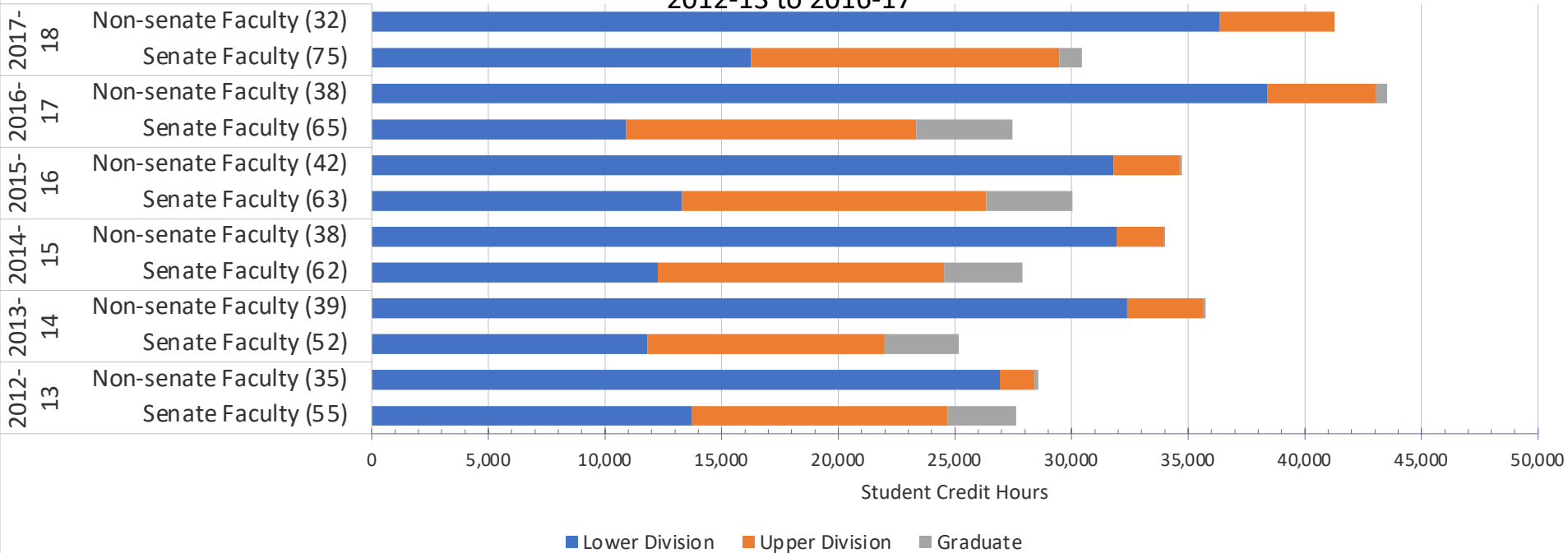
4 Year Graduation Rates by Entering School



4-Year Grad for each School1 Sem01 broken down by Cohort. Color shows details about School1 Sem01. The view is filtered on Cohort, which keeps 201030, 201130, 201230 and 201330.

Delivering a High-quality, Relevant Science & Math Education

Student Credit Hours by Course Level and Senate Affiliation
 School of Natural Sciences
 2012-13 to 2016-17



High-quality, Affordable Education

Aristotle House: Leadership, Education, Service

Faculty Lead: Chelsea Arnold

House Fellow: Craig Ennis

Beyond the MD

Faculty Lead: Aaron Hernday

House Fellow: Mohammad Qasim

Carson House: Sustainable Futures

Faculty Leads: Mike Dawson and Becca Ryals

House Fellow: Kinsey Brock

Vaughan House: The Digital Abacus

Faculty Leads: Erik Menke and Hrant Hratchian

House Fellow: Basharat Jahan

Living Learning Communities



High-quality, Affordable Education

hhmi

Howard Hughes
Medical Institute

Jennifer Manilay, Laura Beaster-Jones,
Marcos Garcia-Ojeda – HHMI Inclusive
Excellence grant



Erik Menke with Christine Isborn, Hrant
Hratchian, Ben Stokes, and J. Michelle Leslie -
\$1.5M NSF grant to improve lower-division
chemistry teaching



CENTER FOR
ENGAGED
TEACHING &
LEARNING
AT UC MERCED

Engaged Teaching
in the Sciences

Value of a High-quality, Affordable Education

Connecting undergraduate education to graduate careers.

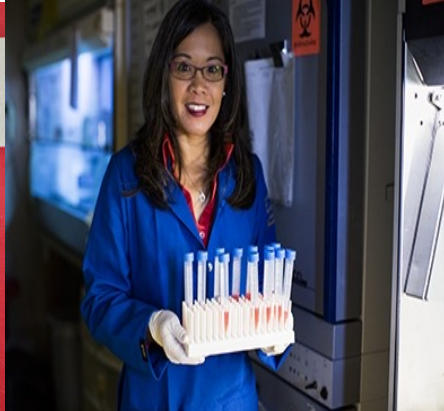
Job Projections (not degree programs)	New Jobs 2014-2024 in 1,000s	Growth Rate 2014-2024	Projected Salary
Educational, guidance, school, and vocational counselors	79.7	8.2	54,560
Occupational therapists	52.6	26.5	81,910
Physician assistants	50	30.4	101,480
Rehabilitation counselors	36	9	34,670
Health diagnosing and treating practitioners	17.7	12	74,530
Statisticians	15.4	33.8	80,500
Orthotists and prosthetists	2.7	22.6	65,630
Epidemiologists	2.2	6.3	70,820
Mathematicians	1.3	21.4	105,810
Genetic counselors	1.2	28.8	74,120

Value of a High-quality, Affordable Education

Connecting undergraduate education to careers.

Job Projections (not degree programs)	New Jobs 2014-2024 in 1,000s	Growth Rate 2014-2024	Projected Salary
Elementary, middle & secondary teachers	838.2	5.8	56,870
Sales representatives (technical equipment)	95.4	6.9	78,980
Medical and clinical laboratory technologists	62.5	14	61,070
Environmental scientists, including health	39.3	10.7	68,910
Biological technicians	26.3	5.2	42,520
Chemists	22.4	2.6	73,740
Health educators	19.5	12.2	53,070
Occupational health and safety specialists	16.9	4	70,920
Geoscientists (except hydrologists & geographers)	15	10.5	89,780
Actuaries	11.7	18.1	100,610
Conservation scientists	10.6	6.9	61,810

Advancing Diversity, Inclusion, and Access



Faculty Equity Advisors

SNS DEI Workgroup

Target of Excellence Initiative

Raise Public Profile and Develop Relationships

SNS graduate programs were ranked within the top 150.

UCM jumped 29 spots to No. 136 overall among National Universities and jumping 20 spots to No. 67 for Top Public Schools.

No. 2 in the nation for far exceeding predicted graduation rates.

No. 44 among national public universities and No. 96 overall for alumni giving rate, quite an accomplishment since the average age of our alumni is 27.

No. 14 in the nation for social mobility.

No. 7 in the nation for performance of students who receive Pell grants, and

No. 13 for the performance of first-generation students.

Develop Relationships



Development office shifting

- Increase capacity for engaging donors
- Share information across campus
- Provide more support

Institutional Targets

- Student Scholarships and Fellowships
- Faculty Endowments
- 2020 Plan

Develop Relationships

Hannah Ewing
SNS Development Officer



Email: hewing@ucmerced.edu

Angelina Gutierrez
Dean's Assistant
School Communications

Email:
agutierrez254@ucmerced.edu



Building and Maintaining Excellence in Everything!



Staff

- The backbone of the university
- Continue to streamline business practices, clarify roles and responsibilities, cross-training
- Professional development
- Opportunities for advancement

Broad Goals for Natural Sciences at UC Merced

1. Excellence in Research
2. Deliver a High-quality, Affordable Education
3. Advance Diversity, Equity, and Inclusion
4. Develop Relationships



UNIVERSITY OF CALIFORNIA, MERCED
BUILDING THE FUTURE
IN THE HEART OF
CALIFORNIA

UNIVERSITY OF CALIFORNIA
MERCED

UCMERCED