

CNAS Hiring Plan (Due May 15, 2023)**Department/Program Name:** Botany and Plant Sciences

CNAS needs to hire faculty to fulfill our mission of research, teaching and service. To prepare our College hiring plan, we are identifying research areas and addressing teaching needs over the next five years. (One response per department/program).

What are the most critical research areas for CNAS and your department/program?

Research Areas [Abbreviations]

Ecology, Evolution, and Ecosystems [EEE]
Plant Genetics and Breeding [PGB]
Biochemistry/Plant Physiology [BPP]
Plant Cell, Molecular and Developmental Biology [PCMDB]
Agricultural and Translational Biology [ATB]
Plant Data Science [PDS]

Positions (Immediately Critical for 2023-24)

Due to recent retirements and departures in Botany and Plant Sciences the department prioritized the following two positions equally. The Plant Molecular Cellular Biology position is essential to maintain our world-renowned strength in plant cell biology by replacing recent departures of distinguished faculty and filling critical teaching needs. The Resilience to Climate Change position is key for developing research strengths in sustainability as we prepare for the impacts of climate change in both agricultural and natural systems, and will also provide essential contributions to our teaching needs.

1. Plant Molecular Cellular Biology [PCMDP, ATB, BPP]

We seek a plant molecular cell biologist to meet the pressing need of replacing distinguished faculty, including two world-renowned plant cell biologists who retired recently. Plant Molecular Cell Biology is a central scientific discipline in plant biology that connects molecular mechanisms at the cellular level to developmental and physiological processes at the organismal level. A molecular understanding of the basic principles of plant cell functions and interactions provides the knowledge base required to propel the development of new technologies that enable sustainable agriculture and food security in a changing climate. To maintain and grow UCR's world-class strength in plant cell biology, we seek to recruit an exceptional plant molecular cell biologist who works at the forefront of modern plant biology to address important topics at the cellular level, such as, but not limited to, cell signaling, organelle biology, development, or plant responses to the environment and climate change. Applicants whose research has agricultural applications are encouraged to apply. This is a tenure-track Assistant Professor position with a joint appointment in the Agricultural Experiment Station. The successful candidate will establish and maintain a vigorous extramurally funded and innovative research program, teach undergraduate and/or graduate courses in plant cell biology or physiology, and/or contribute to campus-wide undergraduate life sciences teaching. Additionally, the candidate will supervise graduate students. Due to recent departures of multiple plant cell biologists, this position is urgently needed to cover teaching needs in the Plant Biology undergraduate program, including BPSC 104 (Foundations of Plant Biology), our gateway course. Potential to leverage funding: The successful applicant will be able to leverage funding from basic science sources such as NSF, as well as applied sources such as USDA, DOE, EPA, NPS.

2. Resilience to Climate Change [EEE, PGB, ATB]

Climate change is causing increases in temperature and carbon dioxide (CO₂) levels and an increased frequency of extreme weather events such as drought and flooding, thus threatening both agricultural productivity and natural ecosystems. We seek a candidate who will use an integrative approach, including the tools of genomics, to understand climate change impacts on plants in both agricultural and natural systems. Specifically, the candidate should work to understand processes that allow resistance or resilience to extreme climate events. Research in this area is essential to develop a comprehensive understanding of the contrasting genomic compositions that are the basis for responses to the environment and important for promoting sustainable practices, both in agricultural and natural environments. The proposed position would form an important bridge between researchers working within the agricultural mission of the Agricultural Experiment Station and researchers working with advanced concepts in Genetics, Genomics and Bioinformatics. The successful applicant will teach Graduate Plant Physiology, will contribute to graduate and undergraduate bioinformatics courses such as BIOL 119 and GEN 220, and develop a graduate seminar in Plant Physiology. Potential to leverage funding: The successful applicant will be able to leverage funding from basic science sources such as NSF, as well as applied sources such as USDA, and commodity boards such as the California Avocado Commission, Citrus Research Board and California Olive Committee.

What undergraduate and graduate courses would these faculty members teach, and is there a critical instructional need for these courses?

Position 1: Plant Molecular Cellular Biology:

Undergraduate courses:

Plant Cell Biology (BPSC135)*, Introductory Biology (BIOL5A), Dynamic Genome (BIOL20), Foundations of Plant Biology (BPSC104)*, Molecular Biology (BIOL107A), lower division non-majors courses (BIOL 002, BPSC11*, BPSC21*).

Graduate courses:

Plant Cell Biology (BPSC 237)*, Plant Biology Core (BPSC200A-B), Plant Cell and Developmental Biology (BPSC 235)*, Cell Biology (CMDDB200)

Position 2: Resilience to Climate Change:

Undergraduate courses:

Introductory Biology (BIOL5A), Dynamic Genome (BIOL20), Plant Physiology (BPSC 143), Bioinformatics (BIOL119), Introductory Genetics (BIOL102), Genes, Selection, and Populations (BPSC150)*, lower division non-majors courses (BPSC11*, BPSC21*)

Graduate courses:

Advanced Plant Physiology (BPSC239*), Plant Genome (BPSC231*), Statistical Genomics (BPSC234), Plant Biology Core (BPSC200A-B), Advanced Genetic Analysis (GEN203), Computational Analysis of High Throughput Biological Data (GEN220), Advances in Bioinformatics and Genomics (GEN241)

*Urgent need due to recent retirements/separations

How will these faculty synergize with other units, and/or fulfill other needs outside of your department/program?

Both positions will collaborate with faculty from other departments and colleges by forming research teams, having secondary appointments in other departments, and participating in interdepartmental

graduate programs. These departments and units could include, Entomology, Environmental Sciences, Evolution, Ecology, and Organismal Biology, Microbiology and Plant Pathology, Statistics, Computer Science and Engineering, Center for Conservation Biology, EDGE Institute, CAFE Institute, and the interdepartmental graduate programs GGB and CMDB.

What types of space/facilities would be needed? Are these lab and office space currently available to your department/program?

All positions will require standard wet lab and office space. Space in Batchelor Hall is expected to be available after the building renovation is completed, but will need significant interior renovation.

Are there significant instrumentation/equipment needs to support this hire? Would shared facilities be required/recommended?

(1) ***In greatest need:*** High quality wet lab space, additional greenhouse space for teaching and research, growth chambers, data science facilities/laboratory to support computation-based teaching (i.e., in bioinformatics, statistics).

(2) **Current and required for future research:** IIGB core facilities (Genomics, proteomics, microscopy, metabolomics), High-Performance Computing Facility, field space in AgOps, space at RECs, tissue culture facilities, wet lab space, natural reserves.

What agencies would these faculty target for funding to support their research program?

NSF, NIH, USDA/NIFA, DOE, EPA, DOD, NASA, NOAA, USAID, International Grant Agencies, State, Regional and Local Agencies, Private Foundations such as the Bill and Melinda Gates Foundation, and Commodity Boards.

How will your department/program contribute to the initial complement of the hires?

We will contribute funds to the initial complement of recruits, based on the previously agreed amount of 10% of the IC, perhaps more depending on the required IC package and the extent of renovations needed.

Describe your plans to obtain a diverse and inclusive pool of applicants for the position(s).

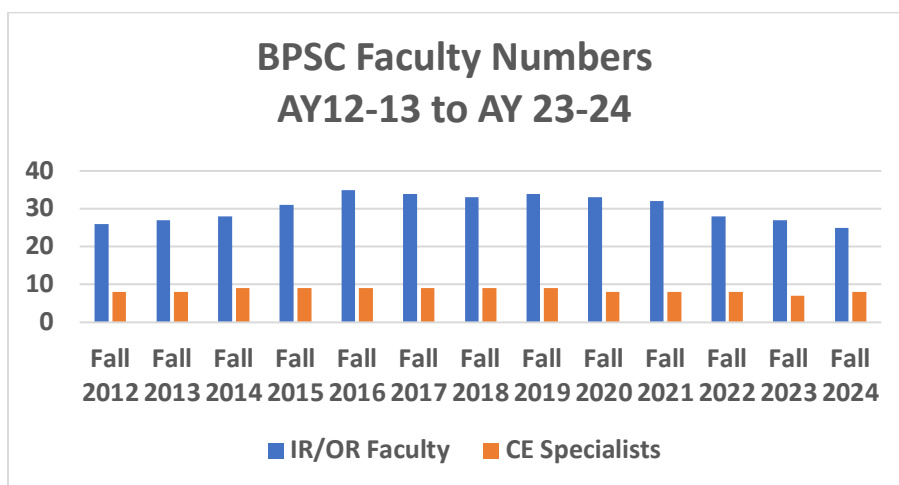
BPSC has a good track record in the area of faculty diversity. Since 2005, between 33% and 40% of the BPSC faculty were women (currently 35%). In recent years we have made progress in diversifying our faculty and our current ranks include 5 faculty of color. Since 2015, 50% of our faculty hires were women and 21% were underrepresented minorities (URM). Our goal is to increase the diversity of our faculty ranks so that we better reflect the diversity of our graduate and undergraduate students. Faculty searches will be broadly advertised, using campus best practices. These include advertising on a wide array of platforms that should reach URM candidates, including SACNAS (Society for the Advancement of Chicanos/Hispanics and Native Americans in Science), American Indian Science & Engineering Society (AISES), American Association of Blacks in Higher Education (AABHE), LGBTQ+ STEM (<https://lgbtstem.wordpress.com/>), and the UC systemwide database of postdoctoral fellows. We also recently obtained and initiated a UCOP Advancing Faculty Diversity grant to develop a mentoring program that is designed to improve faculty retention, especially focused on URM faculty, which we expect will help with faculty retention.

Indicate below faculty that the Department is recommending for teaching relief for the coming year (FY24).
These data were
provided earlier

Faculty (Name)	Reason/Justification	Proposed Course Relief	Departmental Expected Teaching Load

Addendum to BPSC Hiring Plan 2023

Recent retirements and separations have left our department quite vulnerable. The number of faculty with IR/OR appointments has shrunk from a high of 35 in Fall 2016 to 25 in Fall 2022, with several additional retirements/separations planned for AY 23-24.



**Fall 24 Numbers are estimates, based on anticipated hire of two faculty (one accepted, the second search is ongoing) and the expected separation of three faculty in 23-24.

BPSC Faculty contribute to Undergraduate and Graduate teaching in BPSC and other programs

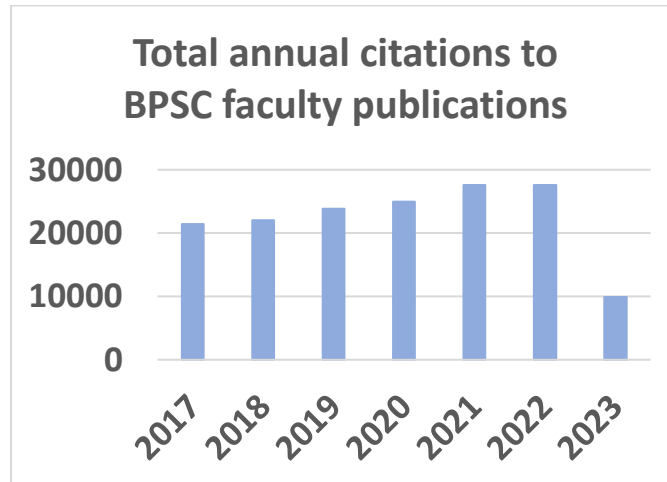
Year	IR Faculty #	Total UG students taught	Total UG credit hours taught	# of faculty teaching UG LD classes*	# of faculty teaching NASC 092/093	# of faculty teaching UG UD classes	# of faculty teaching BIOL and BCH UG classes**	# of faculty teaching UG research courses	# of UG students enrolled in research courses	Total UG research course credits
2017-18	34	2,798	10,688	11	5	19	13	16	41	87
2018-19	33	2,435	9,763	10	4	20	11	22	90	200
2019-20	34	3,136	12,473	12	5	21	10	19	63	156
2020-21	33	3,050	11,808	8	8	22	11	5	7	12
2021-22	32	2,892	11,519	12	5	19	12	13	37	91

• Excludes NASC092/093

** Includes BIOL 5A, BIOL 5B, BIOL 5C, BIOL 20, BIOL 102, BIOL 107A, BIOL 119, and BCH 100. Does not include BPSC courses cross-listed with BIOL or BCH

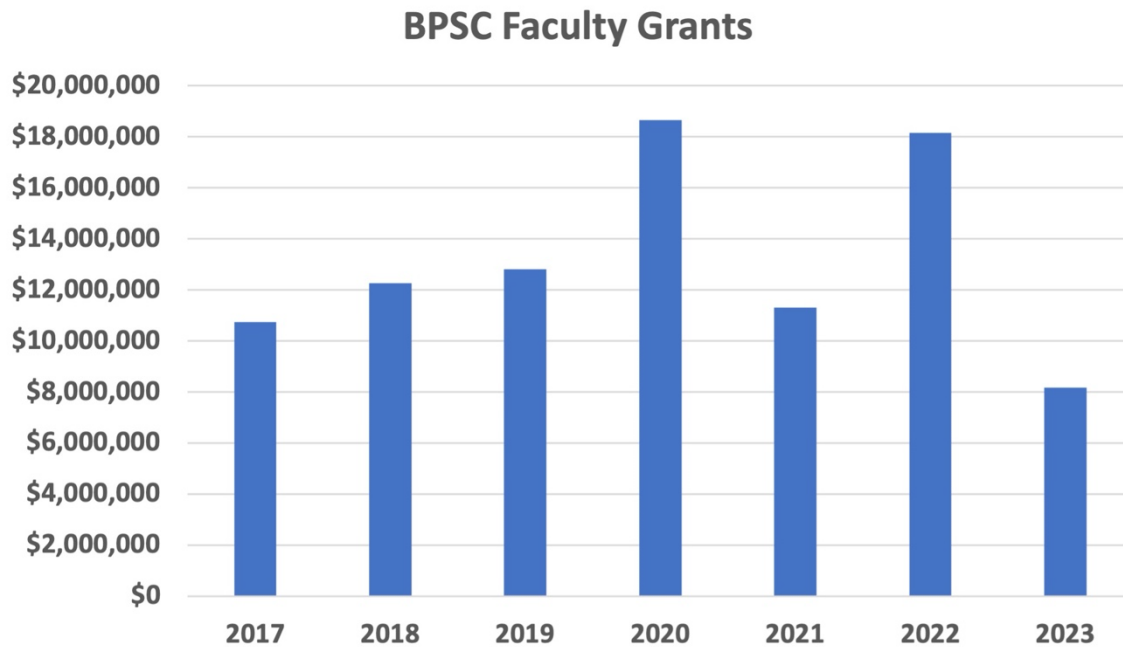
Year	IR Faculty headcount	Total graduate students taught in classes	Total graduate credit hours taught
2017-18	34	165	480
2018-19	33	132	361
2019-20	34	111	341
2020-21	33	109	332
2021-22	32	109	311

BPSC Faculty are highly cited



*2023 numbers are for Jan - April

BPSC Faculty have a high rate of extramural grant funding



* 2023 amount from 7/1/22-3/1/2023