Bending the Curve: 2015 - 2023

Prepared by Scott Friese
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Overview

Bending the Curve (BtC) has many reference points within the University of California (UC) system. It is a transitive verbal phrase that communicates an urgency to slow global temperature rise. It's an academic report whose publication in 2015 led to the creation of a for-credit undergraduate course that launched simultaneously on five campuses in 2018. It's an OER digital textbook; a MOOC; the focus of a collaboration between UC, AlianzaMX and la Universidad Autónoma de México (UNAM); and a short-format learning program for investment and financial executives. In 2022 it became a digital content library consisting of nearly 100 video lectures on climate change solutions, climate justice, and resilience and adaptation strategies developed by researchers from all UC campuses and national labs. And in 2023 it is the proposed framework for a two-year, $5.2 million Climate Action grant that aims to dramatically expand climate literacy in the State of California through initiatives that touch public universities and community colleges, K12 teachers and students, workforce development programs, and public- and private-sector professionals.

Whatever one's focus within the BtC franchise, all roads lead to Veerabhadran "Ram" Ramanathan[1] and Fonna Forman.[2] Ramanathan was the driving force behind the groundbreaking 2015 *Bending the Curve: Ten Scalable Solutions for Carbon Neutrality and Climate Stability* report, and is the brains behind many of the BtC initiatives (discussed herein) that grew from that report. Forman was a co-chair on the report, and together Ramanathan and Forman taught the very first BtC undergraduate course at UCSD. Ramanathan announced his retirement in 2022; however, he remains active in BtC-inspired policy initiatives at both The White House and the Vatican. Forman is leading several initiatives to dramatically expand the reach of the BtC program, both within UC and throughout California.

This overview document provides a detailed look at how BtC has evolved from that report in 2015. It describes the major components of the BtC program and identifies the UC faculty and staff who have played roles in bringing these components to life. It also acknowledges entities within UC (and beyond) whose generous financial and in-kind contributions have funded that work. Finally, it details work currently in planning or production that has the potential to dramatically impact how California sees—and responds to—climate change.

For additional information on BtC projects and initiatives, please visit btc.ucsd.edu.

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[1] Veerabhadran "Ram" Ramanathan is Distinguished Research Professor and Edward Friedman Presidential Chair, Professor Emeritus, Climate Sustainability, Scripps Institution of Oceanography, UC San Diego.
[2] Fonna Forman is Professor of Political Science and Director of the Center on Global Justice, UC San Diego. She is also Co-Chair of the UC Global Climate Leadership Council.

Existing BtC Program Components

Following is a summary of BtC projects and initiatives that have launched between 2015 and the first half of 2023.

Bending the Curve Report

In **2015**,[3] the University of California, Office of the President, published *Bending the Curve: Ten Scalable Solutions for Carbon Neutrality and Climate Stability*, chaired by Ramanathan, co-chaired by Forman and Daniel Kammen,[4] and co-authored by fifty UC researchers across two dozen disciplines. The report identified ten solutions, distributed across six clusters, that California could model for the world: science, technology, policy and governance, finance, land use and societal transformation. The report was the first systemwide initiative of the UC Carbon Neutrality Initiative (CNI). It has influenced California lawmakers, galvanized global pledges, instigated waves of UC applied research and educational innovation, and triggered millions of dollars in state funding for UC-led pilot projects. Former Governor Jerry Brown carried the report with him to the historic COP21 meetings in Paris, and Governor Gavin Newsom is now a fan.

Bending the Curve: Climate Change Solutions Undergraduate Course

In **2016**, encouraged by enthusiastic reception of the BtC report, Ramanathan worked closely with Co-PI Hahrie Han (UCSB)[5] and Scott Friese (UCOP)[6] to draft a proposal for a course development award through the Innovative Learning Technology Initiative (ILTI)[7] to develop a systemwide course offered on all nine campuses. The design of the course as envisioned in their proposal would feature pre-recorded lecture videos from UC researchers and faculty that students would watch in advance. Then during scheduled class times students would engage in discussions and group-based exercises that culminate in a capstone project to showcase their learning. (Ramanathan and Forman would pilot an early version of the course at UCSD in **2017** before ILTI funding was awarded.)

UC Online owned all aspects of course development. UC Online, and Alan Roper[8] in particular, executive produced all lecture videos, and in doing so partnered closely with campus video studios to record lectures and coordinated the hand-off of raw footage from all studios to the Multimedia

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[3] The report was first published in print and online by UCOP in 2015; the digital version of the printed report resides here. In 2016, the University of California Press modified the report's layout for inclusion in the online journal, *Collabra: Psychology*; that version of the report resides here.

[4] Daniel Kammen is the Class of 1935 Distinguished Professor of Energy at UC Berkeley, where he holds appointments in the Energy and Resources Group, the Goldman School of Public Policy, and the department of Nuclear Engineering.

[5] Hahrie Han, formerly with UC Santa Barbara, is the Inaugural Director of the SNF Agora Institute, a Professor of Political Science, and Faculty Director of the P3 Research Lab at Johns Hopkins University.

[6] Scott Friese is on staff at the UC Office of the President, where he is Assistant Director of Instructional Design for UC Online. UC Online is in the Educational Innovations and Services unit in the Graduate, Undergraduate and Equity Affairs (GUEA) department, Division of Academic Affairs.

[7] ILTI, which was renamed UC Online in 2021, would award Ramanathan two course development awards in 2017 and 2018 that totaled $200,000. It would also provide generous in-kind support of instructional design and development resources through course launch in 2018.

[8] Alan Roper was an instructional designer with ILTI from 2017 until 2021.

Services team[9] at UCSD, which created course-ready lecture video sequences. Roper built the course framework in Canvas, and to this day UC Online hosts all campus-specific offerings of the course centrally. In **spring 2018**, the undergraduate course launched on five campuses simultaneously. It has since run on seven of nine campuses and is regularly offered as a hybrid or fully online course at UC San Diego, UC Santa Cruz, UC Riverside and UC Santa Barbara.

The course is path-breaking on several levels:
- Its trans-disciplinary nature attracts students from a wide range of majors and has been offered for credit in the following disciplines: political science, mechanical and aerospace engineering, civil engineering, environmental science, and atmospheric and oceanic science.
- Its solutions focus challenges students to apply their knowledge locally through capstone projects that touch their own communities. At faculty discretion, student exemplars have been published through the California Digital Library.
- It is a truly systemwide course, with contributions from 23 faculty representing nine campuses and labs, that resides centrally on the UC Online instance of Canvas regardless of which campus offers the course.
- It required the creation of a new production model whereby contributors from across the UC system recorded lectures in local campus studios, which then handed off raw files to the UCSD studio for post-production editing into course-ready lecture sequences.

OER Digital Textbook
In **mid-2017**, with course development in full swing, Ramanathan and Friese began exploring how to fund the creation of a companion textbook to meet the needs of students enrolled in the undergraduate course. Friese proposed that ILTI allocate the remainder of an Educause Next Generation Challenge[10] grant to the creation of a BtC textbook, and ILTI graciously agreed. With funding secured, Ramanathan and Friese built a massive project team that included these elements:
- Editor in chief (Ramanathan) and executive producer (Friese)
- Three developmental editors (to interface with authors from ideation through manuscript sign-off)
- Twenty-six chapter authors (many of whom were contributors of lecture videos to the original undergraduate course)
- A book production company (to handle art, page layout, cover design, copyedit)
- An art coordinator (to handle image permissions)
- A publisher (to host the final product)

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[9] The Multimedia Services team, under the direction of Robin Martin, is part of the UCSD Educational Technology Services Group. In 2023 it remains a vital production partner in service of all BtC initiatives.

[10] In April 2011, UC Online Education (UCOE was a precursor to ILTI) received $748,000 from the Next Generation Learning Challenge (NGLC) in the form of a grant to produce 50 online courses and deliver them on an open-licensed, modular courseware platform. UCOE issued its report to NGLC in October 2013, indicating that it had not met all its initial goals, and that it had $238,000 in unspent grant funding. These funds remained unspent when it was proposed that the balance be used for the creation of the textbook.

In **August 2018** the textbook was published as an OER resource under a Creative Commons license through the California Digital Library, and since then it has been accessed nearly 50,000 times. It is embedded in all versions of the undergraduate course as a companion reader.

The planned publication of a digital textbook, available to the public for free, raised questions about which entity owned the content to be published. Friese worked closely with the UCOP Office of the General Council to draft a copyright assignment that all chapter authors and editors would be asked to sign. Through this agreement, project contributors would assign ownership of BtC work products (i.e., textbook chapter, and, retroactively, course lecture video) to UC Regents for use in a range of educational purposes. This Assignment of Ownership agreement, first drafted for the digital textbook, is now a requirement whenever a content creator agrees to contribute work to any aspect of the BtC program.

Licensing the Undergraduate Course

In **2018**, immediately following launch of the undergraduate course within the UC system, Ramanathan began socializing the course within his academic and scientific circles. In anticipation of requests to license the course by universities outside the University of California system, Friese engaged the UCSD Office of Innovation and Commercialization to draft a licensing agreement; internally, he focused on the creation of a content distribution framework that would enable licensees to access course content while protecting the University's IP.

Licensing the BtC undergraduate course to universities outside the UC system began in fall of 2018. To date, UC has licensed the course to the following institutions:
- National Taiwan University (Taipei, Taiwan)
- Stockholm University (Stockholm, Sweden)
- Appalachian State University (Boone, NC)
- MiraCosta College (CA)
- Modesto Junior College (CA)
- San Diego State University (CA)

Environmental and Climate Change Literacy Projects (ECCLPs)

In **2018**, Ramanathan co-chaired, along with Marcelo Suárez-Orozco[11] and two CSU colleagues, [12] the creation of the Environmental and Climate Change Literacy Projects (ECCLPs), a UC-CSU partnership whose goal is for all of California's high school students to be literate in environmental and climate change issues and solutions. Under the direction of Executive Director Kelley Lê, ECCLPs is "launching initiatives focused on the advancement of PK-12 climate and environmental justice literacy through research, teaching and learning, and community partnerships."

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[11] Marcelo Suárez-Orozco, formerly Wasserman Dean and Distinguished Professor of Education, Graduate School of Education and Information Studies, UCLA. Since 2020, he is Chancellorof the University of Massachusetts Boston.

[12] Marquita Grenot-Scheyer, Assistant Vice Chancellor, Educator Preparation and Public School Programs, CSU Office of the Chancellor; and Fred Uy, Director in the Department of Educator Preparation and Public School Programs and Co-Director for the Center for the Advancement of Instruction in Quantitative Reasoning, CSU Office of the Chancellor.

Bending the Curve MOOC and the AlianzaMX-UNAM Partnership

In **2019**, the UCSD Digital Learning Team, under the direction of Karen Flammer,[13] began work to create a four-course MOOC specialization based on the original undergraduate course. The MOOC launched in **2020** through UC San Diego Online with three content courses and a fourth capstone project course. Enrollment in the BtC MOOC is free, though students completing all four courses, and paying the $49 per course fee, will receive a Statement of Accomplishment, signed by Ramanathan and with the UC San Diego logo to verify achievement.

Related, in **February 2022**, Isabel Studer Noguez, Director of UC AlianzaMX,[14] contacted UCOP on behalf of her colleagues at UNAM to express interest in a partnership to (a) generate Spanish-language captions for all MOOC video content, (b) co-develop a fifth MOOC course on the diverse impacts of climate change on Mexico and Latin America, and (c) offer a co-branded version of the MOOC in both English and Spanish. Voices from UCSD and the Digital Learning Team, AlianzaMX and multiple entities at UNAM[15], and UC Online are all involved in early planning, though in mid-2023 an MOU to formalize this partnership remains in draft form with the UNAM legal team.

The possibility of eventually offering the BtC MOOC in both English and Spanish has renewed interest in migrating BtC MOOC content to Coursera and listing it through the UCSD portal on the platform. Ramanathan has long wanted to see the MOOC offered there, and Coursera remains very interested in being able to list the specialization in its catalog. BtC MOOC content is already on Coursera servers, and once we complete production on a 20-minute introductory video that frames MOOC content in a 2023 context it can be launched.

Climate Change Solutions for the Private Sector

In **April 2021**, Ramanathan and UCSD colleague David Victor[16] proposed a collaborative initiative between UC San Diego (including the Scripps Institution of Oceanography (SIO), the Rady School of Management, and the School of Global Policy and Strategy) and the UC Office of the President (including the Office of the Chief Investment Officer and UC Online) to create a learning program that speaks to the unique role that the private sector business community can play in mitigating the impact of climate change. Funding for the program was secured in the form of gifts from UC Investments, via the Office of the Chief Investment Officer, and from Dimensional Fund Advisors, as well as a grant from the UC Global Climate Leadership Council.

The emerging Private Sector framework proposes the creation of a catalog of short-format self-study learning programs that speak to climate change in the context of specific business sectors (e.g., finance and investment, insurance, building science, energy, transportation). Each sector-specific program

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[13] Karen Flammer is Director of Digital Learning for the UCSD Teaching + Learning Commons.

[14] UC AlianzaMX, founded in 2019 and based at UC Riverside, absorbs three pre-existing UC systemwide programs (UC MEXUS, Casa de California, and the UC Mexico Initiative) under a single initiative.

[15] UNAM participation includes content experts from multiple academic departments as well as representation from la Coordinación Universitaria para la Sustentabilidad (CoUS) y la Coordinación de Universidad Abierta, Innovación Educativa y Educación a Distancia (CUAIEED).

[16] David Victor is Professor of Innovation and Public Policy, School of Global Policy and Strategy, UCD; and Co-Director, Deep Decarbonization Initiative.

would be designed for executive management and senior leaders and consist of (a) a core course that presents the fundamentals of climate change science and the implications of climate change on the sector and (b) an extended course that includes core content as well as additional deep dives on more nuanced topics relevant to the sector. Each course would consist of a series of video lectures and accompanying print summaries by researchers, academic and thought leaders from UC and beyond.

In **August 2022**, UC Online wrapped up production on the first course in the Private Sector catalog, *Climate Change for the Private Sector: Core Course for the Investment and Financial Sector,*[17] and offered pilot access to 25 users from Dimensional Fund Advisors. Feedback was universally positive, and Dimensional immediately requested access for hundreds of its internal staff as part of its ESG curriculum through Dimensional University.

In **April 2023** Scripps Institution of Oceanography, the UCSD Division of Extended Studies (DES) and UC Online signed an MOU that establishes a revenue share agreement between the three parties and now allows the program to accept enrollments.[18] Within weeks of signing the MOU UC Online and DES were engaged with entities that would like to license between 1,500 and 2,000 seats.[19] We anticipate that work on the extended course for the financial and investment sector will kick off in the second half of 2023, and should early interest from a handful of parties convert to paid enrollments this year we are hopeful that we can build out the program catalog to include additional sectors in the 2023-24 fiscal year.

Program Maintenance and Expansion
As the pace of climate change increases, consensus understanding of both the underlying science and the impacts of that acceleration on the physical world and humanity is in constant flux. Keeping the content accurate and relevant in a course as broad ranging as BtC is a constant challenge, and a handful of efforts are underway to revise original content and add material to address emerging issues.

Expansion: Risk, Resilience and Adaptation
In **June 2021**, the GCLC awarded $140,000 for the project, *Risk, Resilience and Adaptation Incorporation into Bending the Curve Curriculum*. Co-PIs Forman, David Ackerly (UCB) and Nicola Ulibarri (UCI) have secured commitments from 16 UC faculty to develop a total of nine 50-minute lecture videos that address topics such as biodiversity, agriculture, fire, flooding, mental health, urban and bioregional planning, health, water, and adaptation.

> **Timeline**: New content is currently in production, and it is anticipated that it will be ready for inclusion in course offerings that launch in winter 2024.

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[17] A landing page for the Private Sector program is here; trailer for the Core course is here.
[18] DES handles enrollments and has included the course in its catalog. The Private Sector program website also has links to intake forms that facilitate enrollment for multi-seat cohorts and individuals.
[19] UC Investments has expressed early interest in purchasing 1,000 seats; Dimensional would like to purchase up to 500 seats for internal training and an undetermined number of seats to offer to sector colleagues.

Revisions: 2022-23 Cycle

In **May 2022**, The GCLC awarded $100,000 for the project, *Bending the Curve Videos Updates*. The project, managed by Friese and in close collaboration with Forman, plans to update or completely revise the lecture videos and textbook chapters of 15 topic areas from the original course. Updates for 13 of the topics will include (a) a 10-minute video update that sits atop the original lecture video sequence and (b) a 2023 preface embedded at the front of the corresponding textbook chapter. Material from two topic areas from the original course will be replaced with entirely new lecture videos and textbook chapters.

> **Timeline**: The content audit that informed the selection of the 15 topic areas is complete and contributors have been identified. However, production has not yet begun, and it is anticipated that material may not be ready for inclusion in course offerings until spring quarter 2024.

Expansion: Course Development and Instructional Improvement Program

In **June 2022**, Fonna Forman received $50,000 in CDIIP[20] funding through the Office of the Executive Vice Provost, Academic Affairs at UCSD, to expand the reach of the BtC undergraduate course to additional fields of study at UCSD and within the UC system. This CDIIP funding will cover the cost to create three new versions of the BtC course that address climate change through the Department of Visual Arts, the Herbert Wertheim School of Public Health, and the Jacobs School of Engineering. Each new course will feature two original lectures that look at climate change through the lens of its corresponding academic discipline as well as a selection of content from the original undergraduate course. The six original lecture videos will also be added to the original undergraduate course for the benefit of instructors systemwide who may want to integrate the new material into their teaching.

> **Timeline**: Early planning is underway for all three courses, and it is anticipated that production will begin in fall 2023. As these are all new courses, the three sponsoring schools/departments are also preparing the requisite materials required by the campus' committee on courses.

Revisions: 2024-25 Cycle

Written into the Climate Action proposal is funding to continue the revisions process of content from the original course. Forman included $30,000 in the project budget to produce eight 10-minute video updates to existing lectures and five 50-minute full re-dos of existing lectures. This work would be scheduled for the 2024-25 academic year.

A Streamlined Production Methodology

To support this expansion, UC Online, in collaboration with the UCSD Multimedia Services team, has honed and codified the production methodology that it first implemented for the original undergraduate course. To achieve the highest degree of consistency and professional output across the UC system:

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[20] The UCSD Course Development and Instructional Improvement Program (CDIIP) provides funding to support faculty projects that enhance undergraduate instruction and to encourage faculty experimenting with new instructional technologies including (but not exclusively) the creation of digital resources such as open/free textbooks, online labs, flipped courses, or adaptations that make courses more accessible, more experiential, or improve student success.

1. Friese maintains close contact with multimedia studios on all ten campuses and keeps them apprised of our production needs and scheduling shoots as far in advance as possible.
2. Prior to each shoot, the UCSD media team reviews technical specifications with the campus studio to ensure that outputs vary as little as possible from one campus to the next.
3. The UCSD media team downloads the raw footage and corresponding media to create a rough cut, manage the review process, and finalize a course-ready lecture.
4. Friese adds the video files to the UC Online media server, orders captions, and embeds the lecture video sequence into the BtC digital content library.

"It's Not a Course, It's a Content Library"

The original undergraduate course contains more content, in the form of video lectures, textbook chapters, and ancillary readings, than any instructor could possibly hope to get through in a single ten-week quarter or 16-week semester. Each instructor, when preparing for a new offering, culls through the available material and selects the topic areas they want to cover in the term; within Canvas this is simply a matter of publishing/unpublishing modules and shifting the order in which they appear.

In recognition of the volume of content already produced, and in anticipation of the new content in production that will be made available to course instructors in the coming year, Forman and Friese have begun socializing the idea of a BtC digital content library.[21] Within Canvas we now have a *Bending the Curve Demonstration Site* that is the definitive library of BtC content available for use in courses at UC. This shift in thinking makes room for growing interest from UC faculty not aligned with BtC to use BtC content in their own courses.[22] A digital content library also creates a mechanism by which material from other climate-focused courses, such as Tracey Osborne's *Climate Justice*,[23] can be showcased to, and considered for use by, instructors throughout the system.

California Climate Action Grant Program

On **May 4, 2023**, in response to the California Climate Action Grant program[24] call for proposals, Fonna Forman submitted the proposal, *Bending the Curve: Climate Education for All*, in the Matching Grants

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[21] A comprehensive list of content that is either available or in production is maintained here.

[22] Benis Egoh, Assistant Professor of Earth Systems Science (UCI), integrated BtC video into her course, *Climate Change*, in winter quarter 2023. Amy Knight, Field Researcher, Political Science (UCSD) integrated BtC video into her course, *CAT 124 Sixth College Practicum*, in spring quarter 2023.

[23] Tracey Osborne is Associate Professor in the Management of Complex Systems Department, UCM, and founding director of the UC Center for Climate Justice. Osborne received $202,000 from the GCLC to design and develop *Climate Justice*, which has run both semesters in AY 2022-23 at UCM and is now seeking campus approval to offer it as a fully online course to the UC system.

[24] From the California Climate Action RFP: "The CA Climate Action Research Grants are intended to spur innovative applied research that addresses California's climate goals, ensures that local communities are prepared and resilient, and prevents future disasters."

category for a total of $5.2M. Lead PI Forman, in collaboration with Co-PIs[25] and Co-Is[26] from UC, CSU, the Kern County Community College District (KCCD), and a broad range of community partners, have detailed a vision for an ambitious two-year project to adapt and rapidly scale Bending the Curve for the benefit of a broad swath of audiences across California, including:

- PUBLIC UNIVERSITIES: Dramatic penetration across the 10 UC and 23 CSU campuses.

- WORKFORCE: New workforce development applications focused on vocational skills in the agriculture and energy sectors, codeveloped with Kern Community College District and plans to scale to 15 community colleges across the Central Valley.

- PUBLIC / PRIVATE PROFESSIONALS: New applications for public sector and private sector professionals, with plans to scale to UC and CSU professional schools, and public and private workplace applications.

- K12 TEACHERS + STUDENTS: New pre-service and in-service K12 teacher applications, including K12 learning resources, piloted San Diego regional school districts, and scaled across the state in collaboration with UC and CSU Departments of Education, 30 California school districts through planned AmeriCorps programming, and a network of California climate education organizations and platforms partnering on this proposal.

- PUBLIC AUDIENCES: Content developed through the K12 TEACHERS AND STUDENTS application will culminate in public-facing activity curated by UCSD Scripps-Birch Aquarium, with 470K annual visitors; adopted by the UCSC Seymour Marine Discovery Center, with 100K annual visitors; and expanded to 23 aquarium affiliates and their collective 30M annual visitors. Public-facing content will focus on equity-centered, community-led climate resilience strategies.

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[25] Co-PIs include: **Ram Ramanathan**; **Ganesh Raman** (Assistant Vice Chancellor for Research, Office of the Chancellor, CSU); **Scott Friese**; **Ken Alex** (Senior Policy Advisor to Governor Jerry Brown, 2011-2018; Director, Project CLEE, UCB School of Law); **Cliff Rechtschaffen** (Commissioner, California PUC 2016-2022); Leslie Reynolds (Director, Groundwork San Diego-Chollas Creek); **Jalisca Thomason** (Professor of Agriculture, Bakersfield College); **Nan Renner** (Senior Director of Learning Design and Innovation, Birch Aquarium at SIO / Learning Sciences Advisor, CREATE, UCSD); **Tom Corringham** (Research Economist, SIO, UCSD); **Ayelet Gneezy** (Carol Lazier and Family Endowed Chair in Social Innovation and Impact , Professor, Behavioral Sciences and Marketing, Rady School of Management, UCSD); **Alec Barron** (Director, San Diego Science Project, CREATE, UCSD).

[26] Co-Is include: **Fred Uy** (Director, Educator and Learning Program, Office of the Chancellor, CSU); **Kelley Lê**, Executive Director, UC-CSU ECCLPs, UCI); **Tracey Osborne**, Associate Professor, Management of Complex Systems and Presidential Chair; Director UC Center for Climate Justice, UCM); **Teddy Cruz** (Professor of Visual Arts / Director of Urban Research, Center on Global Justice, UCSD); **Sherice Clark** (Assistant Professor, Education Studies, UCSD); **Isabel Studer** (Director, UC Alianza MX; Professor, Public Policy, UCR); **Renaldo Arroyo** (Professor of Forestry and Natural Resources, Bakersfield College); **James McGarrah** (Professor of Physical Sciences / Energy; Associate Dean of STEM Instruction, Bakersfield College); **Carolee Trimble** (Associate Professor, Agriculture Crop / Soil Science, Bakersfield College); **Nicola Labas** (Principal, Millennial Tech Middle School, San Diego Unified School District); **Allie Sifrit** (Education Director, Groundwork San Diego-Chollas Creek); **Rachel Millstone** (Supervisor of Secondary Science and English Language Arts, Education Studies UCSD).

Timeline: The Research and Grants Program Office (RGPO) at UCOP has committed to announcing grant recipients in July 2023. Should *Bending the Curve: Climate Education for All* be funded through the CA Climate Action program the project would run for two years (September 1, 2023, through August 31, 2025). In Year 1, project teams will focus on research, planning and design; in Year 2, project teams will focus on development, pilots, and implementation. While not currently funded, Year 3 efforts would be used to gather data, report on findings, and further extend penetration of outputs throughout California.