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# Developing a Comprehensive Resilience Plan for UCLA



**Team leaders** | Nick Caton and Lea Le Rouzo

**Team members** | Anh-Vy Pham, Sophia Bozone, David Scolari, and Tory Coffin

**Stakeholders** | Amy Shadkamyian and Nurit Katz

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## Meet the Team



Nick Caton: 3rd year environmental science major with a minor in environmental engineering



Lea Le Rouzo: 3rd year environmental science major with a double minor in geography/environmental studies and food studies



Sophia Bozone: 2nd year environmental science major with a double minor in spanish and environmental systems & society



Tory Coffin: 3rd year geography and environmental studies major with a minor in geospatial information systems & technology



Anh-Vy Pham: 2nd year environmental science major with a minor in environmental systems & society



David Scolari: 3rd year economics major with a double minor in math and environmental systems & society

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## Introduction

*“Resilience is the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.” -Second Nature*

Resilience in relation to sustainability is the ability of a system to bounce back from shocks and stressors in order to maintain the environment for future generations to come—but this is not a term often heard at UCLA. That being said there is not a proper program that applies resilience to UCLA either. Therefore, our research team’s goal this year was to give this idea of resilience a running start. In 2018, Mayor Eric Garcetti released a thorough resilience plan for the city of Los Angeles and since then UCLA hopes to apply a similar framework to its own campus. Doing so is no easy task however.

In order to build a resilience program, our first goal was to discover what existing programs and departments at UCLA had the ability to respond to any oncoming shocks and stressors. Meanwhile, we also kept tabs on programs that did not exist, but could be developed for the future. All of this data was kept in a spreadsheet that organized the resilience goals by categories such as equity and fire management. We then took this data and reached out to program directors and department heads to ask for their interest in participating in UCLA’s first Resilience Task Force on May 6, 2019. During this meeting, our team presented our research and recommended areas of improvement. Members of the task force then provided their feedback and advice on what gaps they identified in our current resilience system are and what should take

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precedent in terms of refinement. After placing down these first stepping stones, we hope that the authors of UCLA's first resilience plan will use our research to help tackle a number of topics ranging from natural disasters to natural disasters.

## **Background**

In years past, two previous SAR teams have tackled resilience at UCLA. The first team formed in 2016 shortly after Chancellor Gene Block signed Second Nature's Campus Resilience Commitment. Their research focused on best practices in urban resilience, especially those implemented by other universities and institutions. The team began their research by gathering background information on the field of resilience planning from sources such as the Rockefeller Foundation's "City Resilience Framework." They then met with leaders in the field, including Marissa Aho, Chief Resilience Officer for the City of Los Angeles, and Andy Lipkis, founder and president of TreePeople, an environmental non-profit, in order to gain a better understanding of best practices in resilience. The team also took note of some resilience practices by other universities, including the University of Oregon's implementation of an Incident Management Team, which brings together decision makers from several different departments to make the university more resilient. The background research done by the 2016 resilience team laid the foundation for future work on resilience at UCLA.

In 2017, SAR's second resilience team worked to plan, acquire funding, and gain approval for the implementation of a stormwater capture cistern. The team began with a few potential locations to implement the cistern, but eventually decided on the first floor of Parking Structure 9. After drafting blueprints and applying for funding from The Green Initiative Fund, the team eventually got approval for a system of cisterns that

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would sit in an empty space on the first level of parking structure 9 and collect and filter stormwater runoff. The stormwater capture currently under construction and set to be completed in the spring of 2019.

Both previous resilience teams provided our team with a foundation to build upon. We have continued to research best practices in resilience as we build recommendations for UCLA's Resilience Task Force. Additionally, as the 2017 team's cisterns are set to be implemented during the upcoming Spring Quarter, our team had the opportunity to begin the work on an educational display to show all the hard work of the past teams and hopefully turn the interest of the public toward the ongoing work at UCLA to become a more resilient and sustainable environment.

## **Our Story**

Our team's project was born out of our meetings with our stakeholders. Our stakeholder, Nurit Katz, communicated the need for the resilience spreadsheet created by urban planning graduate student Michelle Tirto to be completed to advance the planning stages of UCLA's future resilience plan. We were then tasked with filling in the gaps of Tirto's research by completing her spreadsheet.

When we began our research project in winter quarter, our first step was to familiarize ourselves with the work that had been done on the resilience spreadsheet so far. A graduate student in Urban and Regional Planning at UCLA, Michelle Tirto, had previously written a report assessing UCLA's current plans, from emergency operations to sustainable transportation, and compared them to the Rockefeller Foundation's resilience qualities. Part of her report included a master spreadsheet, highlighting 15 goals and 96 strategies outlined in Los Angeles' Resilience Plan. Our team took on the



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task of analyzing existing programs at UCLA that supported the indicated resilience strategies.

To best address the scope of the resilience framework, we decided to divide the goals and pursue research individually. The goals were divided as follows: Safety, Health, Water, Vulnerable Populations, Equity, Energy & Transportation. Our individual research consisted of assessing existing programs at UCLA that apply to each specific goal, finding a department that is responsible for that program, and then selecting an appropriate contact person. If UCLA did not currently have an existing program, we researched other cities/campuses that did and suggested recommendations for improvement along with a relevant resource to contact for more information.

First, each member identified as many existing resources/programs at UCLA that applied to a specific goal. Then, we collected contacts for each specific program. On programs that we thought would be especially relevant to UCLA's resilience plan, we conducted phone interviews with these contacts. In our individual phone interviews, we started by introducing SAR and our specific research goals. Then, we explained why their particular program/department was relevant to UCLA's Resilience Plan and gauge whether they were interested in assisting with our needs or being a member on the task force.

Next, we identified resilience goals that do not currently have any support at UCLA. These were the gaps in Tirto's research that our stakeholders felt would be most beneficial to the UCLA's future Resilience Plan. Once we had identified a gap, we selected a department that should theoretically be responsible for an applicable program if it existed. One of UCLA's goals surrounding housing is to "Coordinate a

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homeless housing service provider preparedness program to fortify systems and services to withstand future challenges.” Existing applicable programs on campus include: Bruin Shelter, a student run organization that provides housing for up to 10 students based off a competitive application process and the Economic Crisis Response Team, another student lead organization that offers a 14 day stay in a shelter when an student faces an economic crisis. We identified Louis Tse, Executive Director of Bruin Shelter, and Mark Veldkamp, Director of Case Management Services, as relevant contacts. We believe that UCLA currently lacks a robust and centralized infrastructure to provide housing security for a student population as large as ours. We recommend that UCLA establish a university-based program that is devoted to providing services for housing insecure students in order to better address this resilience goal. This is just one pathway of the multiple recommendations we make later in the report.

Early in spring quarter, our team created a survey to better understand who the vulnerable populations our resilience framework aims to serve across our campus. College campuses host a high concentration of vulnerable groups. We wanted to gain a better idea of which shocks and stressors affect which groups disproportionately and which resources these people use on campus to combat those shocks and stressors. With a better understanding of the stressors’ frequency and severity, we could also distinguish which resources were either underdeveloped or completely lacking on campus. Initially, we gave out our survey at the Earth Day Fair and eventually distributed it to our personal networks. Our vulnerable population survey helped us brainstorm which resources to recommend expanding at our task force meeting and in our spreadsheet.

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With our individual research and survey completed, we finalized recommendations to give to the resilience task force. For the purpose of clear and concise communication, each member was responsible for summarizing a strength and a challenge they found in their research and suggesting a recommendation for improvement. We discussed these suggestions as a group and revised them until they were ready to be presented to our task force meeting in spring quarter.

On May 6th, our group presented our research and recommendations at the resilience task force meeting. With the help of Nurit Katz, our attendee list included Bonny Bentzin, Chidera Izuchukwu, David Eisenman, David Karwaski, Ken Davis, and Mark Gold. We began by individually summarizing our research categories, then opened the meeting for questions and discussions. We were given helpful insight into addressing resilience at UCLA in the future. Strengths and challenges in resources on campus should be measured in response to a certain shock or stressor. Measuring resources in this way will allow for gaps to be filled. In addition, resilience planning should always involve the vulnerable populations being addressed. Instead of planning for vulnerable populations, we should aim to plan with them. Looking forward, the UCLA resilience task force should invite a broad a wide range of stakeholders at the beginning, then break up into smaller, more focused groups. This task force can make progress towards creating a stand alone resilience documents with goals that cross over with climate planning.

Upon applying to SAR, our team was under the impression that our project would be to push forward the efforts of the previous SAR team in addressing water resilience on campus. During our initial meetings with our stakeholders, we were



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instead tasked with adopting [Los Angeles' Resilience plan](#) to UCLA. Up for the challenge, our team had to shift our focus on water to instead look at resilience on a much broader scale. This was difficult initially as we had to begin our research by familiarizing ourselves with the broad nature of resilience and how this concept has recently been applied to entire cities involving a number of organizations.

In addition, our team faced difficulty in communicating with siloed faculty and staff while conducting our individual research. This presented an obstacle in understanding the work of a department or organization on campus, especially in understanding how departments/organizations relate to each other. This is significant because developing a resilience plan requires that several related entities work together utilizing their individual strengths.

## **Results**

We collected qualitative data of various departments, programs, and contacts that are already addressing specific aspects of resilience on campus (Appendix B). We tailored each one of Resilient LA's 96 actions or "goals" to UCLA. Then, we identified applicable programs/departments that already exist accompanied by contact information and links to outside resources. For example, under the category of "Vulnerable Populations" we determined that the action to "Expand mobile city services for vulnerable populations" was well addressed through the Mobile Clinic Project and the Ashe Center Flu Fair. There were some actions that were not applicable to a college campus. Additionally, some categories such as "Corporate Structuring" were out of our reach as students. In these cases, we simply marked "N/A."

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After we completed the spreadsheet, we discussed our key takeaways from our independent research and drew conclusions on areas of resilience that were properly addressed and areas that needed improvement. Additionally, we interviewed 75 Bruins with the intention of identifying where resources were of the highest priority for students (Appendix D & E). Our findings below have been thoroughly vetted to be included in UCLA's first ever Resilience Plan. We have discussed our findings candidly at our weekly team meetings. We have been challenged to dig deeper by our stakeholders. Furthermore, a task force of experts--those who are likely to be co-authors of the plan--attended a presentation of the data and participated in an open discussion

What follows is an examination of resilience at UCLA in the scope of some of the themes that our team identified in [Resilient Los Angeles](#).

#### Individual Research Results

##### **Anh-Vy – Equity**

One of the themes we looked into was equity; that being UCLA's ability to be fair and impartial to its community on campus in terms of health, well-being, and social inclusivity. UCLA handles equity well and has many programs and department that target it head on. One of the goals listed in the [Resilient LA](#) that also applies to UCLA is to “*expand partnerships and programs to reduce food disparities among students, faculty, and staff.*” According to an 2016 article from the [LA Times](#), about 40% of students in the UC system have suffered from food insecurity at some point in their lives. Since then, UCLA has made headway in bettering this issue with the formation of the Basic Needs Committee whose mission is to address basic needs issues on

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campus. “Their efforts include building and enhancing existing services, conducting comprehensive research, and creating new innovative programs and resources,” according to the [Basic Needs Committee website](#). One of the successful programs they look over is the CPO Food Closet located in the Student Activity Center (SAC). In 2009, the CPO Food Closet started to tackle food insecurity and since then it has become a communal food pantry that helps thousands of students on a day to day basis.

While also looking into the pros of equity at UCLA, we noted the programs and departments relating to social inclusivity that could be further developed to better prepare for oncoming shocks and stressors. The [LA Resilience Plan](#) hopes to “support systems and services that are linguistically inclusive and culturally competent”, where the idea is to be more inclusive of the many languages that the various cultures in LA present in the community in order to reduce linguistic isolation. Some applicable programs at UCLA are the Writing Success Program in SAC and UCLA CAE’s provision for sign language interpreters. However, there is room for possible improvement. UCLA does a great job to support diversity and its community, but the goal could be expanded to decrease the barrier by being more linguistically inclusive with its publication, communication, and engagement. This goes beyond support. The CPO touches on this idea of diversity by creating programs where students of similar cultural backgrounds support other students like the Southeast Asian Campus Learning Education and Retention program (along with other clubs on campus), however they are not focused on the communication aspect which touches on the languages of other backgrounds. Diversity on campus is mainly structured by student organizations. Though there is a formalized UCLA group that supports equity, the services they

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provide are limited. Therefore, this is a category relating to social inclusivity that can be further developed in the face of shocks and stressors.

Sophia – Transportation/Homeless Students

[Resilient LA](#) covered three main goals within the area of transportation. This is an incredibly important facet of daily life for all Angelenos, and likewise impacts students and staff alike. The first of these goals addresses both the expansion of access to reliable transportation systems and the advancement of “transit resilience.” The next two goals are concerned with the continuing expansion of sustainable management of transportation infrastructure on behalf of UCLA. Transportation at UCLA has been well maintained, with a pre-existing comprehensive framework for coordination of university operated vehicles as well as the multitude of others that traverse campus daily, so work is already being done to unofficially meet these goals.

UCLA has made extremely beneficial partnerships with transit agencies such as the Metro to provide discounted services to Bruins, and campus shuttles and the Big Blue Bus have greatly increased mobility within the campus and extending into Westwood. In addition to these institutional services, UCLA has partnered with Lyft to offer discounted rides within a radius of the school to offer even more economically feasible options for students. In the next few years, a metro station will extend all the way to our doorstep for cheaper, city-wide access.

With regards to the goals for resilient and environmentally conscious transportation, UCLA Transportation has created a [Sustainable Transportation Plan](#) which outlines plans for 2019 through 2026. Little has been overlooked in this plan that covers air travel carbon offsets, transit advocacy, and promoting active forms of transportation.

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Paired with performance measures and milestones, UCLA is moving in a very positive direction in this area.

Less strong is the institutional support for homeless students. UCLA has many resources for struggling students housed under the basic needs committee. The food closet, the good clothes, good people closet, and other services come in to support students that may be struggling financially, but for students that specifically have no place to go every night resources may be slim. Other than the Economic Crisis Response Team (offers up to a two week stay in residence halls), the only temporary housing offered is a student-run and staffed shelter called Bruin Shelter. While the Bruin Shelter offers amazing services for students in terms of housing, its scope is limited with only 10 beds and a long waiting list. Their shelter is run by a group of mostly student volunteers and funded by donations, and it may not be able to support homeless students in the way that a university-based program would be able to. Additionally, there are no established programs that may encourage and advise a homeless student actively looking for housing. The existing programs are an amazing starting place but could be expanded to the great benefit of students that need the most support.

### **Nick – Cyber Security**

UCLA's Information Security Office manages a number of programs intended to protect Bruins from a variety of cyber threats. As society's dependence on mobile devices, digital networks, and online databases becomes ever more ingrained in our culture, the tools we use to protect ourselves must evolve with us. UCLA is a massive target for cyber threats; however, through a multitude of services available to the

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community, we believe they are fully equipped to handle any future shocks and stressors that arise online.

Multi-factor Authentication (MFA) is becoming common place with other online sites such as facebook, email, etc and is UCLA's way of addressing Los Angeles' resilience goal: *"Modernizing their Infrastructure"* and the strategy: *"Enhancing protection of critical digital assets from cyberattacks."* After a cyber attack in May 2017, where 32,000 students personal information was breached, UCLA began rolling out Duo Multi-Factor Authentication (MFA). Now, before logging on to any UCLA credentialed site, students must both use their password and give secondary authorization, typically through a push notification on their smartphone. According to Michael Van Norman, Chief Technology Officer of UCLA, "The goal of MFA is to create a multilayered approach that makes it difficult for any unauthorized person to gain access to a system."

Perhaps as important as protecting the institutional itself, is educating those who represent it. The CyberSafe Bruin Blog is a great way to educate the UCLA community and address the Los Angeles resilience goal of *"Educating and engaging Angelenos around risk reduction and preparedness so they can be self-sufficient for at least seven to 14 days after a major shock"* and the Strategy: *"Teach Bruins how to protect themselves from cyber-attacks."* Students and faculty upload blogs with preventative security tips typically geared towards the lives of students. The Cyber Security Awareness Training Video Modules provide people who are seeking protection with fun educational videos that depict real world solutions with cartoon characters. Furthermore, UCLA Extension offers a certificate program in Cyber Security for those



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interested in specializing in information systems security and cybersecurity. Provided free of charge for recent alumnus, UCLA presents community members with a convenient and financially accessible way to learn how to become cyber resilient.

According to Ken Davis, the Lead Information Security Analyst of Security Operations, UCLA does not participate in the Los Angeles Cyber Lab; however, he agrees that future collaboration with the city at large would be beneficial. The LA CyberLab is a non-profit organization that incubates innovation, practices education, and facilitates information sharing between the public and private sectors. As UCLA gathers more than 80,000 Angelenos on its campus daily, we recommend that the Information Security Office delegate a leader to sit on the council with Mayor Garcetti and other cyber security stewards which in turn would lead to more protection and innovation in the Greater Los Angeles area.

### **Nick – Wildfire Risk Reduction and Preparedness**

UCLA's ability to reduce the risk of and prepare for wildfires was identified as a high priority area that needs significant improvement throughout our research. The state of California has recently been decimated by a trifecta of unnatural weather patterns: drought, wildfires, then heavy rains. In December of 2017, the Skirball fire burned over 400 acres of land.

According to David Schonfield, the Director of USC's National Center for School Crisis and Bereavement, schools, whether they be K-12 or large universities, are a sanctuary for vulnerable communities. Schonfield urges schools to educate their community on natural disaster risk reduction and prepare a clear communication plan before a wildfire/storm hits.

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While UCLA's emergency management plan is comprehensive and the avenues for communication after the fact are clear, the UCLA Fire Department's outreach and education programs for wildfire risk reduction are minimal. Luckily, there are many resources out there that can help. According to the report, "Management strategies in the wildland-urban interface of southern California and their effect on fire behavior and environmental impacts," organizing interactive, informational displays where the vulnerable neighborhoods are likely to be present, such as at a centralized market or city council meetings, is the most effective and efficient way for fire personnel to educate community members. FireWise USA is another resources that UCLA can tap into which provides resources on how to properly manage vegetation near structures, specific plant lists for given geographical areas, construction materials and standards, evacuation planning, etc.

The SAR resilience team recommends that the UCLA Fire Department, Office of Emergency Management, and the Center for Public Health and Disasters collaborate on developing a Wildfire Safety Council. The council must be interdisciplinary to harness different perspectives of the land and how to properly manage it including: fire personnel, wildlife biologists, community gardeners, residents, developers, environmental groups, emergency management specialists, air pollution experts, etc. With this council, UCLA will then achieve the Los Angeles resilience goal and subsequent strategy of "Building social cohesion and increasing preparedness through community collaboration" via "increasing neighborhood outreach and education around wildfire and mudslide risk reduction in UCLA's most vulnerable neighborhoods." We suggest posting risk reduction signage at Ralphs, Ackerman Union, environmental

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awareness events on campus, Westwood and North Westwood neighborhood council meetings, and other large community gathering places. We also recommend working with USC's National Center for School Crisis and Bereavement to adopt their way of providing training and workshops to k-12 communities to a broader scale at UCLA. By collaborating with USC we can increase our communication network from UCLA to Los Angeles as a whole and, in the case of a disaster, have another resource/friend that is willing to help.

### **David – Vulnerable Populations and Services**

One of the goals laid out by Resilient LA is to connect vulnerable populations to mobile services. This is an important goal because in a city as large as Los Angeles, certain populations may be located in areas where necessary services are not easily accessible. UCLA's campus is small geographically, but its large, diverse population gives it the potential to have far reaching impacts. While their *mobility* is not as critical, it is still important for the services that UCLA offers to be well targeted at various groups within the campus community in order to ensure that every individual is able to fulfill their needs.

UCLA already offers a variety of services to members of its campus. For example, during flu season, the Ashe center sets up tents and tables and [administers flu shots](#) in Bruin Plaza. The [CPO Food Closet](#), [UCLA Farmers Market](#), and the [Westwood grocery shuttle](#) are some examples of food related services that UCLA offers. Some other services that UCLA offers include legal services, financial services, and mental health services, to name a few. In order to plan a more resilient campus,

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UCLA should continue to streamline and expand the services it offers to its campus community.

But planning and implementing services is only half of the equation. In order to connect groups of people to services, UCLA must first identify the populations that are most vulnerable on its campus and determine which services they need. There are some obvious candidates, such as food insecure and homeless students, low wage workers, and ethnic minority groups, but a UCLA resilience plan should involve a robust study of its population to both identify the most vulnerable groups within it and determine the services they need. This study, whatever form it may take, should include should be done in partnership with groups that represent vulnerable populations to avoid planning for populations and instead plan with them.

### **Tory – Water**

UCLA is committed to reducing its water footprint. Along with all UC campuses, [UCLA](#) is working to achieve a 20% reduction of potable water by 2020. Its [Water Action Plan](#) identifies key areas in which the campus can reduce its water consumption, such as the conversion of grass to turf on the IM field, dewatering at the Ronald Reagan Medical Center, and the use of the cogeneration recovery system. In addition, UCLA Grand Challenges has set the [goal](#) of 100% locally sourced water by 2050. Other water conservation measures include the expansion of the water reclamation building which results in annual savings exceeding \$300k (after payback), and the conversion of grass areas to sustainable, drought resistant landscaping.

UCLA can improve upon its flood mitigation infrastructure. UCLA has experienced costly floods in the past such as the [2014 flood](#) that resulted in \$13 million

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worth of repairs due to a pipe break. More recently, [Murphy Hall](#) experienced flooding from heavy rainfall. To implement stronger mitigation infrastructure, UCLA can draw upon the example of the University of Iowa.

Through funding from the [Federal Emergency Management Agency \(FEMA\)](#) and the state of Iowa, the University of Iowa has addressed flood risk mitigation on its campus as a result of a costly flood in 2008. To prevent future damage from flooding, the university has requiring all buildings to be protected against a 2008 level flood, relocated damaged buildings outside of the floodplain, and development of a campus-wide flood mitigation strategy. FEMA's plan states that: "mitigation planning can result in lower insurance premiums, including flood insurance through the National Flood Insurance Program." The Agency recommends: the elevation or floodproofing of buildings; drainage improvements and structural works; moving critical uses (communications, library and other collections, offices) to higher locations; elevation of vulnerable equipment and research subjects, book collections, art, and more. Drawing upon UI's work, UCLA should also develop its own resilience framework using the guidance of FEMA's "[Building a Disaster-Resistant University](#)" plan. UCLA's Hydrology and Water Resources team can work alongside the UCLA Water Taskforce to conduct research to develop and implement flood mitigation infrastructure at UCLA. This could include adapting buildings to be flood resistant as 31% of UCLA's buildings are at least 60 years old, and the implementation of more permeable pavements.

### **Lea – Food and Education**

One of the goals in the Los Angeles resilience framework focuses on education and employment, especially in cultivating leadership, stewardship, and equity with

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young Angelenos. As a renowned research-based institution, UCLA has an advantage in educating the proximate community. UCLA has already identified the strengths of the Career Center and the Alumni Association. Having a better understanding of how these programs advance leadership, stewardship, and equity among students may be an asset to the framework. The Career Center serves as the strongest resource on campus for this education goal, linking academic strength at UCLA to careers in our communities.

Many student organizations on campus take on similar goals as the Career Center, in more specialized niches. For example, ASCE helps students develop resumes, lead work groups, attend networking events, and hear from private companies at information sessions. Various departments across campus benefit from similar student organizations, which should be added to the plan to show the depth of commitment to strengthening the Education-to-Career Pipeline.

The graduate school at UCLA also offers similar but more specialized services as the Career Center. As the number of students attending graduate programs increases, this service will continue to have an increasing impact on the same goal. UCLA programs that aim to use employment and partnership to specifically prevent homelessness are limited. Though diversity programs exist, no programs seem tailored to housing insecure students specifically, especially as they fail to address other circumstances housing insecure students may be subject to (clothing, mental health, sexuality). Economic Crisis Response Team is an important resource on campus but does not maintain a significant relationship to allow housing insecure students to create employment partnerships.



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UCLA also has noteworthy and constantly growing resources for food insecure students to find consistent meals. Between the Community Programs Office and student-run organizations, movement to reduce food insecurity on campus has increased tremendously over the past decade. The following tools should be added to the resilience framework under a subgoal addressing food security for students on campus. Food security among students allows for other more obvious resilience efforts to be prioritized and builds a more resilient student population.

Emergency preparedness through local food system, however, is limited. As the student body is large and compacted in a small area on campus, in case of an emergency, feeding the student population would pose a significant challenge. Finding more ways to grow food on campus, like the vertical towers and community garden would allow less dependence on outside food providers. Looking to other campuses with similar urban settings and their local food practices could help campus become less dependent on other food resources.

## **Recommendations**

The 2019 SAR Resilience Team is excited to see our findings and recommendations implemented in UCLA's official plan. Moving forward, however, we think that future SAR teams should focus their efforts on specific areas of resilience, like the 2016 and 2017 SAR Water Resilience teams. We believe that fire, a literal hot topic in California right now, has the opportunity to birth many types of projects.

David Eisenman, the director of UCLA's Center for Public Health and Disasters, noted during our task force meeting that UCLA does not have a protocol to defend against particulate matter inhalation during and after the event of a fire. We believe a

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potential project for next year's SAR team could be to research the best management practices for dealing with smoke and Particulate Matter 2.5 & 10, especially for those affected by asthma. This project could include researching which face masks, if any, or best in the event of a fire. Furthermore, they could work with Residential Life and ASUCLA to make the face masks readily available in public locations. We suggest conducting an attitude survey to see if the general public would even want to wear the mask. Then tackle any socio-cultural assumptions through strategic outreach and education on campus.

The project above focuses on responses to a wildfire; however, risk reduction is just as important. We urge future SAR teams to work with the UCLA Fire Department to identify and physically remove vegetation surrounding UCLA that could incite or fuel a pre-existing wildfire. Christopher Dicus, from the USFS, recommends that areas on the wildland-urban interface follow these [Management Strategies](#) to mitigate fire risk. Using GIS and physical observations, the SAR team could work on identifying vulnerable areas and then conduct field work to improve our campuses' barrier from wildfires.

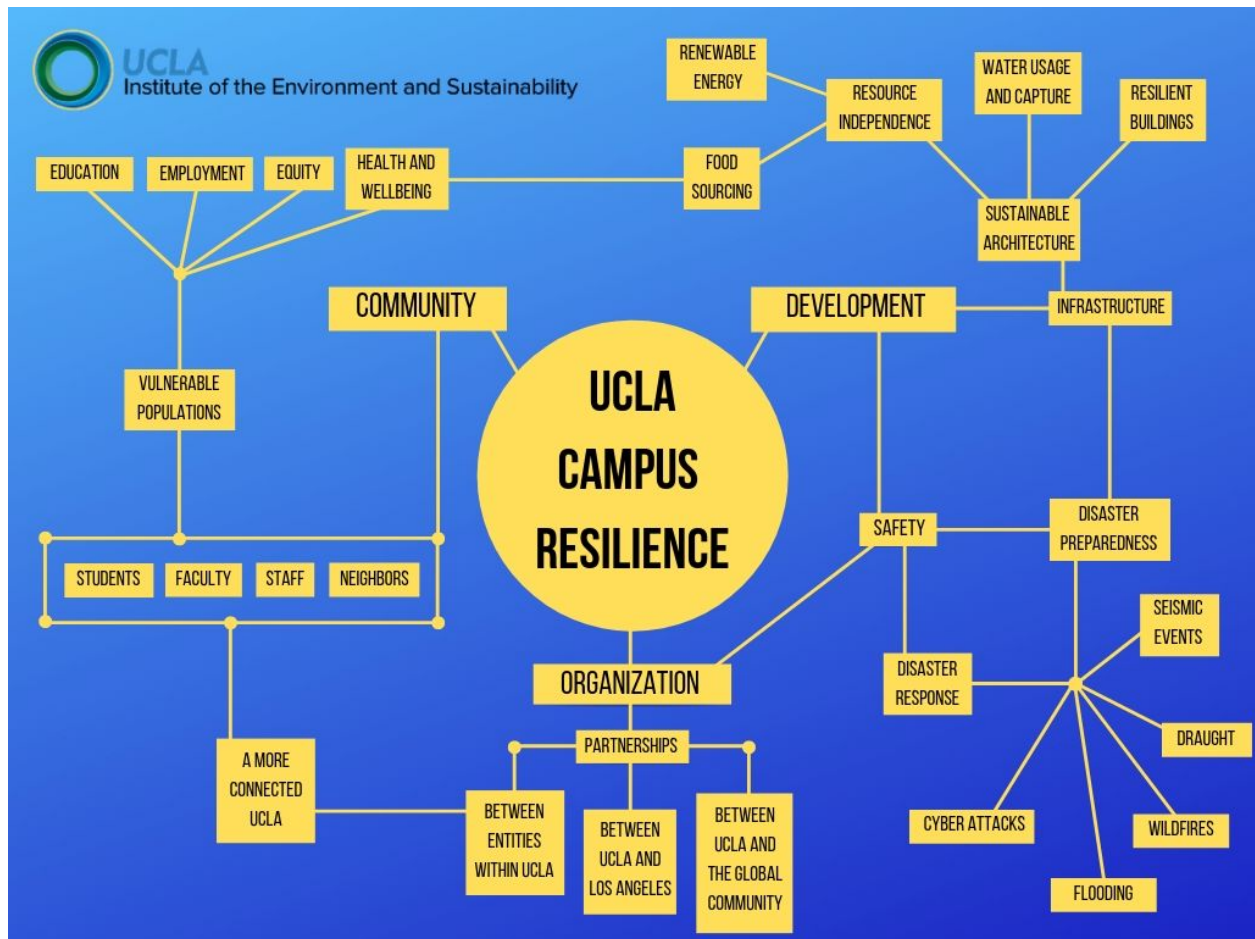
## **Conclusion**

The Office of Emergency Management and Facilities Management have made great strides in gathering support and resources to help in the creation of the institution's first comprehensive resilience plan. By engaging key stakeholders in a task force meeting, identifying gaps in resources, and making recommendations for the content of the plan, it has become apparent that a plan of this magnitude requires a

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focused team of diverse experts. We believe that UCLA has a unique opportunity to be a leading higher education institution in the relatively new field of resilience.

6a. Appendix A: A mind-map of resilience at UCLA that describes the linkages between seemingly distant areas of interest on campus.



## 6b. Appendix B: Spreadsheet of our research, resources, and contacts broken down

Goals	Existing applicable programs at UCLA	Contacts (name, position, email/number)	Links/Resources
Innovate more resilient and sustainable buildings by advancing Building Forward LA.	N/A	N/A	N/A
Establish post-disaster restoration targets for critical infrastructure	N/A	N/A	N/A
Leverage infrastructure investments leading up to the Olympics and Paralympics to advance resilience goals	N/A	N/A	N/A
Fortify critical lifeline infrastructure and supply chains through continued assessments, coordination, and investment	N/A	N/A	N/A
<b>Equity (Anh-Vy)</b>			
Increase the health and wellness of Angelenos through 2028 Olympic and Paralympic partnerships.	BFit, Drake Stadium, IM Field, John Wooden Center, Pauley Pavilion, etc. CSA (South Central Farms) / Food Insecure: Hunger Project, Food Closet, Economic Crisis Response Team Meal Vouchers Program, Economic Crisis Response Team (ECR TEAM), Swipe Out Hunger, Students for Students, ASUCLA Catering, CalFresh	UCLA Rec: JWC (3102068307), Sunset Rec (3108253671), SAC (3102060443), Marina Aquatic Center (3108230048), Pauley (3108254546)  food closet (3108255969 or support@cpo.ucla.edu); ECR Team (Mark Veldkamp- director- 3108257291); Swipe Out Hunger (Eddie Manguia (copresident) http://www.swipehunger.org/ucla);	<a href="https://www.recreation.ucla.edu/Facilities">https://www.recreation.ucla.edu/Facilities</a>  <a href="http://www.hungerprojectucla.com">http://www.hungerprojectucla.com</a> <a href="https://www.brc.ucla.edu/Resources">https://www.brc.ucla.edu/Resources</a> <a href="https://www.studentincrisis.ucla.edu/Economic-Crisis-Response">https://www.studentincrisis.ucla.edu/Economic-Crisis-Response</a> <a href="http://www.swipehunger.org/ucla">http://www.swipehunger.org/ucla</a>
Expand partnerships and programs to reduce food disparities among students, faculty, and staff	N/A	N/A	N/A
Invest in healthy and safe housing to improve public health and increase equity	N/A	N/A	N/A
Increase access to open space in underserved neighborhoods	Franklin D Murphy Sculpture Garden, Mildred E. Mathias Botanical Garden, Sunset Canyon Recreation Center, Sycamore Park	Facilities Management: (310) 206-8847 SERVICE@FACNET.UCLA.EDU    Sunset Rec:(310) 825-3671 Sycamore Park: (310) 825-3671	<a href="https://www.facilities.ucla.edu/services/landscape-grounds/ucla-gardens-parks">https://www.facilities.ucla.edu/services/landscape-grounds/ucla-gardens-parks</a>
Improve the health and well-being for all ages through improvements in mobility	Accessibility Services for Students, UCLA Transportation, Office for Students with Disabilities; UCLA Center for Accessible Education	UCLA Transportation transportation@ts.ucla.edu; Office for students with disabilities Phone: (310) 825-1501; UCLA Center for accessible education ( (310) 794-5725 cdimon@saonet.ucla.edu)	<a href="https://www.cae.ucla.edu/Campus-Transportation">https://www.cae.ucla.edu/Campus-Transportation</a>
Develop new UCLA-wide equity indicators to inform and measure inclusive investments and policy-making	Student Affairs Information & Research Office (SAIRO), Undergraduate Experience Survey (UCUES), Graduate and Professional Student Survey (GPSS)	SAIRO- Kristen McKinney, Director (kmcinney@saonet.ucla.edu); UCUES Office (ucues@saonet.ucla.edu)	<a href="https://www.sairo.ucla.edu">https://www.sairo.ucla.edu</a> <a href="https://www.ucues.ucla.edu">https://www.ucues.ucla.edu</a>
Support systems and services that are linguistically inclusive and culturally competent	UCLA Office of Equity, Diversity and Inclusion, SEA, MEChA Calmécac, RAINI, Samahang Pilipino Education and Retention	Office of Equity (310) 825-3935; UCLA CPO (310) 825-5969	<a href="https://equity.ucla.edu/inow/inclusion-strategies/">https://equity.ucla.edu/inow/inclusion-strategies/</a> <a href="http://www.uclacommunityprograms.org/src/">http://www.uclacommunityprograms.org/src/</a>
Expand education and capacity-building to promote pluralistic values and social inclusion	SEA, MEChA Calmécac, RAINI, Samahang Pilipino Education and Retention	UCLA CPO (310) 825-5969	<a href="http://www.uclacommunityprograms.org/src/">http://www.uclacommunityprograms.org/src/</a>
<b>Water (Tory)</b>			
Integrate additional resilience measures in the implementation of Los Angeles River waterway revitalization efforts	*LA River goals are not specific to UCLA, however I kept some bc UCLA is working/conducting research on relevant areas  Lower Los Angeles River Revitalization partnership (between Luskin students and Urban Waters Federal Partnership (the client), a member of the Lower Los Angeles River Working Group)	Delia Arriaga (primary author) Luskin phone number: 310-267-5435 Tracy Dudman, Capital Programs, Senior Planner Campus Sustainability Committee—Water Task Force	<a href="http://innovation.luskin.ucla.edu/content/lower-los-angeles-river-revitalization">http://innovation.luskin.ucla.edu/content/lower-los-angeles-river-revitalization</a>
Expand and protect water sources to reduce dependence on imported water and strengthen the City's local water supply	Water Action Plan (UCLA Sustainability Committee) AND Water Resource Group AND UCLA Grand Challenges research team (goal of 100% local water by 2050)	@sustain.ucla.edu Grand Challenges: Thom Mayne, distinguished professor of UCLA A.U.D. Thom.Mayne@ucla.edu  Colleen Callahan, Deputy Director ccallahan@luskin.ucla.edu Anastasia Loukaitou-Sideris, Professor, UCLA Urban Planning Department sideris@ucla.edu	<a href="https://www.sustain.ucla.edu/wp-content/uploads/Water-Action-Plan-Final.pdf">https://www.sustain.ucla.edu/wp-content/uploads/Water-Action-Plan-Final.pdf</a> <a href="https://slaresearch.grandchallenges.ucla.edu/project/100-sustainable-strategies-2050-renewable-energy-local-water-and-ecosystem-health-los">https://slaresearch.grandchallenges.ucla.edu/project/100-sustainable-strategies-2050-renewable-energy-local-water-and-ecosystem-health-los</a>
Prioritize key neighborhoods for urban greening, and other community benefits	Luskin: Urban Greening & Complete Streets	Richard F. Ambrose, professor of environmental health? rambrose@ucla.edu (will ask Amy)	<a href="http://innovation.luskin.ucla.edu/complete-streets">http://innovation.luskin.ucla.edu/complete-streets</a>
Prioritize key neighborhoods for stormwater capture, and other community benefits	Storm Water Program, UCLA Environment, Health and Safety	Timu W. Gallien, Ph.D. Assistant Professor (her research includes: Flood control infrastructure and mitigation methods) tgallien@seas.ucla.edu (and others-see site)	<a href="https://ehs.ucla.edu/storm-water-program">https://ehs.ucla.edu/storm-water-program</a>
Leverage flood mitigation infrastructure to enhance local water availability	UCLA Engineering: Hydrology and Water Resources (research group)	Director, Emergency Management: ART KIRKLAND BKIRKLAND@EHS.UCLA.EDU	<a href="https://www.ece.ucla.edu/hydro/">https://www.ece.ucla.edu/hydro/</a> <a href="https://ehs.ucla.edu/emergency-management">https://ehs.ucla.edu/emergency-management</a>
Proactively address flood risk through policy, communication, and infrastructure planning	UCLA Office of Emergency Preparedness: Bruin alerts, etc		<a href="https://www.ices.ucla.edu/content/environmental-law/emmett-institute-on-climate-change-and-the-environment/publications/combating-sea-level-rise-in-southern-california/">https://www.ices.ucla.edu/content/environmental-law/emmett-institute-on-climate-change-and-the-environment/publications/combating-sea-level-rise-in-southern-california/</a> <a href="https://www.ices.ucla.edu/wp-content/uploads/ResFinalReport.pdf">https://www.ices.ucla.edu/wp-content/uploads/ResFinalReport.pdf</a> <a href="https://www.ices.ucla.edu/project/council-for-waterinhd-health/">https://www.ices.ucla.edu/project/council-for-waterinhd-health/</a>
Incorporate sea level rise modeling into local plans	Most applicable: Law school report on how local governments in social can combat sea level rise	Megan M. Herzog, Sean B. Hecht	
Implement stormwater projects that reduce pollution and capture local water supply	Previous SAR group (rainwater capture system)	Nurit Katz, Chief Sustainability Officer	
Revitalize, enhance, and protect the Los Angeles River watershed's ecosystem and biodiversity	IoES Practicum project on quantifying LA River watershed health	Noah Garrison, advisor of project ngarrison@ices.ucla.edu	
Identify strategies to reduce pollution in the Los Angeles River system	N/A	N/A	N/A
Provide education programming to maintain a healthy watershed and keep Angelenos safe	*suggestion* UCLA Botanic Gardens: implementation of education programs and outreach pertaining to maintaining a healthy watershed	Dr. Philip W. Rundel, Director (310) 825-1260	<a href="https://www.botgard.ucla.edu/gardensections/">https://www.botgard.ucla.edu/gardensections/</a>
Leverage the LA RiverWay for emergency access and evacuation routes to increase citywide preparedness and disaster response capacity	N/A	N/A	N/A
<b>Vulnerable Populations (David)</b>			
Increase the number of students, staff, and faculty with preparedness resources and training in the most vulnerable areas	Bruin Safe App: office of emergency management, UCLA Warden Program: facilities management warden contact list, UCLA Health Warden Program, UCLA Healthy Campus Initiative:		
Supporting LA: help map key community services at the neighborhood level, possibly commit to creating/supporting mobile community services in neighborhoods without them	ashe mobile clinics/flu week flu fairs, UCLA farmers market	Ashe Center: (310) 825-4073 UCLA farmers market: uclafarmersmarket@gmail.com	<a href="https://www.facebook.com/uclafarmersmarket">UCLA farmers market facebook</a>
Expand access to services for homeless, marginalized, and vulnerable student communities	Housing Insecure: BruinShelter, Student Run Homeless Clinic, Economic Crisis Response Team (ECR TEAM) / Previously Insecure: Incarcerated Youth Tutorial Project (IYTP), UCLA Prison Education Program, Underground Scholars Initiative / Undocumented: Improving Dreams Equality Access (IDEAS), DREAM Resource Center (UCLA Labor Center), Undocumented Student Program / Special Needs: Center for Accessible Education (CAE), Employee Disability Management Services, Transitional Return to Work (TRTW)	Economic Crisis Response Team (ECR TEAM): ecr@saonet.ucla.edu, phone: 310-206-1189 Incarcerated Youth Tutorial Project (IYTP): iytp@cpo.ucla.edu  Improving Dreams Equality Access (IDEAS) (310) 825-6937, ideas@ucla.edu DREAM Resource Center (UCLA Labor Center): 310-794-5983 Undocumented Student Program: usp@saonet.ucla.edu, 310-206-2980 or 310-794-2544 Center for Accessible Education (CAE): (310) 825-1501	
Continue to support and expand the Los Angeles Justice Fund	USP/undocbruins, student legal services	Undocumented Student Program: usp@saonet.ucla.edu, 310-206-2980 or 310-794-2544 student legal services: (310)-825-989	



into categories of resilience.

Expand mobile city services for vulnerable populations	Mobile Clinic Project (Law, Medical, Public Health), ucla Ashe Center Flu Fair	Mobile Clinic Project (Law, Medical, Public Health): liaison, mobilclinic@gmail.com ucla Ashe Center Flu Fair: (310) 825-4073	
Promote and expand housing options for vulnerable populations such as chronically homeless and homeless veterans and victims of domestic violence and human trafficking	Bruin Shelter, Student Run Homeless Clinic Economic Crisis Response Team (ECR TEAM) Veterans Resource Office (VRO) Student Veteran Group Boots to Bruins: article about it, seems outdated Veteran Family Wellness Center	Economic Crisis Response Team (ECR TEAM): ecr@saonet.ucla.edu, phone: 310-206-1189 Veterans Resource Office (VRO): veteran@saonet.ucla.edu, Veteran Family Wellness Center: familycenter@nrc.ucla.edu	
supporting people post trauma	CAPS, facilities management Counseling and Psychological Services (CAPS) Staff and Faculty Counseling Center (SFCC) New Student & Transition Programs Depression Grand Challenge Resilience Peer Network UCLA Healthy Campus Initiative GRT		
Provide students, faculty, and staff access to additional trauma resources			
<b>Socio Economic (David)</b>			
Supporting LA: Identify, cultivate, and incubate high-growth sectors while promoting economic mobility	Technology Development Group (TDG) Bruinucube: this is pretty weird Innovation Fund: funding	Technology Development Group (TDG): info@tdg.ucla.edu, 310.794.0558,	<a href="#">annual report</a>
Expand partnerships that encourage reintegration and successful reentry of previously incarcerated individuals	Dr. Robin Kelly, Incarcerated Youth Tutorial Project (IYTP) UCLA Prison Education Program Underground Scholars Initiative	rdkelly@history.ucla.edu	<a href="http://www.history.ucla.edu/faculty/robin-kelley">http://www.history.ucla.edu/faculty/robin-kelley</a>
<b>Safety (Nick)</b>			
Expand an inclusive network of services that strengthen individuals, families, and communities to combat all forms of violent extremism	<b>Community Programs Office:</b> Students Heightening Academic Performance through Education (SHAPE) & Social Awareness Network for Action through Art, <b>Office of Diversity, Equity, and Inclusion:</b> Discrimination Prevention Office & Title XI office/Sexual Harassment Prevention, <b>Los Angeles Region Intervention Steering Committee:</b> Project Eval LA	Antonio Sandoval, Director of CPO (310) 825-5969	<a href="http://www.uclacommunityprograms.org/">http://www.uclacommunityprograms.org/</a> & <a href="https://equity.ucla.edu/">https://equity.ucla.edu/</a> &
Adopt emergency land-use tools to address displacement and redevelopment in advance of a major earthquake or other catastrophic event (ASK AMY)	Campus Emergency Response Team (CERT) training <b>UCLA police department:</b> crimereports.com, Crime Prevention Trainings	Amy Shadkayman, Emergency Management Specialist: 3107946001 UCPD: (310) 825-1491	<a href="https://www.oem.ucla.edu/training-programs/cert-ucla">https://www.oem.ucla.edu/training-programs/cert-ucla</a> <a href="http://crimereports.com/">http://crimereports.com/</a>
Prevent Crime and Violence through Enhanced use of Data Implement citywide data integration systems to support first responders and City Departments in identifying the most urgent and highest need situations (ASK AMY)	Campus Emergency Response Team (CERT) training	Amy Shadkayman, Emergency Management Specialist: 3107946001	<a href="https://www.oem.ucla.edu/training-programs/cert-ucla">https://www.oem.ucla.edu/training-programs/cert-ucla</a>
<b>Cyber (Nick)</b>			
Teach students, staff, and faculty how to protect themselves from cyberattacks	<b>UCLA Information Security Office:</b> UC Cyber Security Awareness Training, Multi-Factor Authentication (MFA), National Cyber Security Awareness Month, UCLA IT Security Twitter Account, UCLA Student InfoSec Blog	David Shaw, Chief Information Security Officer (interim)	<a href="https://www.it.ucla.edu/security">https://www.it.ucla.edu/security</a>
Facilitate partnerships with UCLA departments through the UCLA Information Security Office	<b>UCLA Residential Life:</b> Tech Fair, Geek Week <b>UCLA Information Security Office:</b> Multi-Factor Authentication (MFA), Encryption, PhishBowl	David Shaw, Chief Information Security Officer (interim)	<a href="https://www.it.ucla.edu/security/resources/security-events">https://www.it.ucla.edu/security/resources/security-events</a>
Enhance protection of critical digital assets from cyberattacks	<b>UCLA Information Security Office:</b> PhishBowl program where users can report scams to prevent it from happening to others	David Shaw, Chief Information Security Officer (interim) Christian Lopez, Programs manager in the Information Security Office, (310) 825-8000	<a href="https://www.it.ucla.edu/security/alerts/phishing-scams">https://www.it.ucla.edu/security/alerts/phishing-scams</a>
Lead development of a cross-sector Cybersecurity Innovation Incubator (ASK AMY)			
<b>WILDFIRES (Nick)</b>			
Increase neighborhood outreach and education around wildfire and mudslide risk reduction in our most vulnerable neighborhoods	USC's National Center for School Crisis and Bereavement, UCLA Fire Department & David Eisenman's Center for Public Health and Disasters	David Eisenman: deisenman@mednet.ucla.edu & UCLA Fire Marshall, Dana Johnson: DanaJ@ehs.ucla.edu	<a href="https://ehs.ucla.edu/directory/dana-johnson">https://ehs.ucla.edu/directory/dana-johnson</a>
<b>RIISING TEMPERATURES (Nick)</b>			
Develop an Urban Heat Vulnerability Index and Mitigation Plan for UCLA to prepare for higher temperatures and more frequent extreme heat	<b>Los Angeles Urban Cooling Collaborative, David Eisenman's Center for Public Health and Disasters:</b> Interactive google map of cooling centers in Los Angeles. <b>University of California: Bending the Curve Report,</b> Carbon Neutrality Initiative, Cool Campus Challenge.	David Eisenman: deisenman@mednet.ucla.edu, Edith de Guzman: edeguzman@treepeople.org, Valerie Catangay & Megna Patel (CNI Fellows)	<a href="https://cpdh.ph.ucla.edu/">https://cpdh.ph.ucla.edu/</a> & <a href="https://www.treepeople.org/urbancooling">https://www.treepeople.org/urbancooling</a> & <a href="http://universityofcalifornia.edu/sites/default/files/Bending_the_Curve_FS_spreads.pdf">http://universityofcalifornia.edu/sites/default/files/Bending_the_Curve_FS_spreads.pdf</a>
Develop and launch a UCLA retrofit pilot program to test cooling strategies that prepare for higher temperatures	Develop and launch a UCLA retrofit pilot program to test cooling strategies that prepare for higher temperatures	Los Angeles Urban Cooling Collaborative, David Eisenman's Center for Public Health and Disasters David Eisenman: deisenman@mednet.ucla.edu, Edith de Guzman: edeguzman@treepeople.org	<a href="https://www.treepeople.org/urbancooling">https://www.treepeople.org/urbancooling</a> <a href="https://cpdh.ph.ucla.edu/">https://cpdh.ph.ucla.edu/</a>
<b>Disaster Response/Preparedness (Nick)</b>			
Establish neighborhood-based, short- and long-term post-disaster housing plans	Emergency Operations Plan (EOP), Bruinshelter, Natural Hazards Risk and Resiliency Research Center (NHR3)	Jenny Jay, Professor of Environmental Eng: jjay@seas.ucla.edu	<a href="https://www.risksciences.ucla.edu/nhr3">https://www.risksciences.ucla.edu/nhr3</a>
Explore "precovery" funding opportunities in collaboration with regional, state, and federal partners	The Green Initiative Fund (TGIF)	Jessica Alexander, TGIF Grant Coordinator, 310-206-0700, TGIF@asucla.ucla.edu	<a href="http://tgifucla.edu/">http://tgifucla.edu/</a>
Encourage increased access to emergency power for critical services (ASK AMY)	UCLA Facilities/UCLA Office of Emergency Management	Amy Shadkayman, Emergency Management Specialist: 3107946001	<a href="https://www.facilities.ucla.edu/services/energy-management">https://www.facilities.ucla.edu/services/energy-management</a>
<b>Seismic</b>			
Increase participation in city and state programs that promote safer housing by reducing earthquake risk	Natural Hazards Risk and Resiliency Research Center (NHR3) & Campus Emergency Response Team (CERT) training	Jenny Jay, Professor of Environmental Eng: jjay@seas.ucla.edu	<a href="https://www.risksciences.ucla.edu/nhr3">https://www.risksciences.ucla.edu/nhr3</a> & <a href="https://www.oem.ucla.edu/training-programs/cert-ucla">https://www.oem.ucla.edu/training-programs/cert-ucla</a>
Advance seismic safety, prioritizing the most vulnerable buildings, infrastructure, and systems	Natural Hazards Risk and Resiliency Research Center (NHR3)	Jenny Jay, Professor of Environmental Eng: jjay@seas.ucla.edu & Amy Shadkayman, Emergency Management Specialist: 3107946001	<a href="https://www.risksciences.ucla.edu/nhr3">https://www.risksciences.ucla.edu/nhr3</a>
Collaborate with California cities to advance regional seismic safety	Natural Hazards Risk and Resiliency Research Center (NHR3)	Jenny Jay, Professor of Environmental Eng: jjay@seas.ucla.edu	<a href="https://www.risksciences.ucla.edu/nhr3">https://www.risksciences.ucla.edu/nhr3</a>
Launch an Earthquake Early Warning System	UCLA BruinAlert, Bruin Safe App	Amy Shadkayman, Emergency Management Specialist: 3107946001	<a href="https://www.bso.ucla.edu/">https://www.bso.ucla.edu/</a>
<b>Energy/Transportation/Climate Change</b>			
Develop a clean energy and smart grid infrastructure that is reliable in the face of future climate impacts and hazards	Renewable Energy Association, UCLA Smart Grid Energy Research Center	Rajit Gadh, PhD Director: SMREC Email: rgadh@seas.ucla.edu Phone: (310) 267-4892	<a href="http://smartgrid.ucla.edu/index.htm">http://smartgrid.ucla.edu/index.htm</a>
Expand combined solar and energy storage pilots	Renewable Energy Association, Green Initiative Fund/Sustainable LA Grand Challenges	REA has only student leadership indicated, no faculty advisors and leaders // Jessica Alexander, TGIF Grant Coordinator TGIF@asucla.ucla.edu // UCLA Grand Challenges: Richard Wirz Email: wirz@ucla.edu Phone: (310) 825-5489 (energy committee), and Cassie Rausser Tel: 310 206 4337 Email: crauser@conet.ucla.edu (Director of Sustainable LA Grand Challenges)	<a href="http://tgifucla.edu">http://tgifucla.edu</a> , <a href="https://grandchallenges.ucla.edu/sustainable-la/">https://grandchallenges.ucla.edu/sustainable-la/</a>
Transition to Fossil-Fuel-Free Streets to fight air pollution and help tackle the global threat of climate change	Bruin Commuter Club, BruinTAP, Bruin Bus, UCLA Bike Share, Carpool/Vanpool	David Karwaski, Transportation's Senior Associate Director for Mobility, Planning & Traffic Systems dkarwaski@ts.ucla.edu or 310-206-8315	<a href="https://transportation.ucla.edu">https://transportation.ucla.edu</a>
Coordinate among transit agencies to advance regional transportation and transit resilience	BruinTAP, BruinBus, metro expansion	David Karwaski, Transportation's Senior Associate Director for Mobility, Planning & Traffic Systems dkarwaski@ts.ucla.edu or 310-206-8315	<a href="https://transportation.ucla.edu">https://transportation.ucla.edu</a>

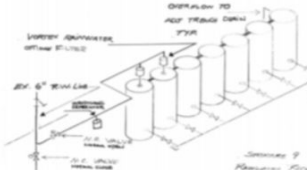


Ensure climate resilience and adaptation planning is robust and consistent with the Paris Climate Agreement	UCLA IOES Center for Climate Science Research, Climate Neutrality by 2025: Climate Action Plan	Center For Climate Science Reserch: Alex Hall alexhall@atmos.ucla.edu and Neil Berg nberg@ioes.ucla.edu	<a href="https://www.ioes.ucla.edu/climate/">https://www.ioes.ucla.edu/climate/</a>
Expand electric fleets, charging infrastructure, and energy backup to reduce emissions and support emergency and response services	Bruin Bus, on-campus Electric Vehicle Charging Stations, UCLA Fleet	David Karwaski, Transportation's Senior Associate Director for Mobility, Planning & Traffic Systems dkarwaski@ts.ucla.edu or 310-206-8315	
Transition to zero-emissions technology at the Port of L.A. to reduce emissions, improve air quality, and build disaster resilience	Either N/A or existing applicable research		
<b>Housing</b>			
Double the pace of affordable housing production and preservation and triple production of new permanent supportive housing by changing regulation, adopting new financing mechanisms, and exploring adaptive re-use of publicly-owned sites	Goal to guarantee housing for 4 years for students, "Housing Master Plan"		
Coordinate a homeless housing service provider preparedness program to fortify systems and services to withstand future challenges	Bruin Shelter(Student for Students) UCLA Economic Crisis Response Team	Sam Piedra - a Case Mangement student supervisor spiedra@ucla.edu	<a href="http://www.bruinshelter.org/professional-partners/">http://www.bruinshelter.org/professional-partners/</a> <a href="https://www.sfsa.org">https://www.sfsa.org</a> <a href="https://www.studentincrisis.ucla.edu/Economic-Crisis-Response">https://www.studentincrisis.ucla.edu/Economic-Crisis-Response</a>
<b>Employment (Sophia)</b>			
Expand access to financial literacy and security resources for UCLA students, staff, and faculty	Jumpstart - UCLA Center for Community Learning, UCLA Financial Wellness Program	Sara Potter spotter@saonet.ucla.edu (Financial Wellness Program Director) // Director of UCLA Center for Community Learning, Shalom Staub 310-825-1115	<a href="http://www.uei.ucla.edu/community-learning/jumpstart/">http://www.uei.ucla.edu/community-learning/jumpstart/</a> <a href="https://www.financialwellness.ucla.edu">https://www.financialwellness.ucla.edu</a>
Establish a capital project pipeline that creates living wage jobs for Los Angeles' most disadvantaged	Undocumented: Improving Dreams Equality Access (IDEAS), DREAM Resource Center (UCLA Labor Center), Undocumented Student Program/ Special Needs: Center for Accessible Education (CAE), Employee Disability Management Services, Transitional Return to Work (TRTW)	- Valeria Garcia Program Director: Undocumented Student Program vgarcia@saonet.ucla.edu - Leticia Bustamante DRC Dream Summer Coordinator Phone: 213-480-4155 x253 lbetia67@ucla.edu - George Chacon DRC Project Manager Phone: 213-480-4155 x256 gchacon@ucla.edu - Director CAE Dr. Nicky Woods - (310) 267-2007 nwoods@saonet.ucla.edu - Mallay, Dean Director of UCLA Insurance and Risk services dmallay@ucla.edu (310) 794-8013	<a href="https://www.usp.ucla.edu">https://www.usp.ucla.edu</a>
<b>Education (Lea)</b>			
Build partnerships that strengthen the Education-to-Career Pipeline	-UCLA Graduate School of Education & Information Studies -Students orgs like ASCE -Academic Advancement Program	-Assistant to the Chair, Education Department lebre@gseis.ucla.edu general contact info: info@gseis.ucla.edu -Mahsa Sheykhsoltan, President of ASCE msheykhsoltan@gmail.com (949) 616-6794 -Charles J Alexander, PhD, AAP Director calexander@college.ucla.edu	<a href="https://gseis.ucla.edu/">https://gseis.ucla.edu/</a> <a href="http://www.ascebruins.org/">http://www.ascebruins.org/</a> <a href="https://www.aap.ucla.edu/">https://www.aap.ucla.edu/</a>
Strengthen opportunities for young Angelenos to connect with civic leadership programs	-Civic Engagement Minor -Student orgs (like TEACH) -Living Learning Communities	-Doug Barrera, Assoc Director for Engaged Research dbarrera@college.ucla.edu -Teach email: teach.ucla@gmail.com -livinglearning@ucla.edu LGBT center - lgbt@lgbt.ucla.edu	<a href="http://www.uei.ucla.edu/academic-programs/civic-engagement/">http://www.uei.ucla.edu/academic-programs/civic-engagement/</a> <a href="https://www.teachat UCLA.com/">https://www.teachat UCLA.com/</a> <a href="https://reslife.ucla.edu/livinglearning/">https://reslife.ucla.edu/livinglearning/</a> <a href="https://www.lgbt.ucla.edu/">https://www.lgbt.ucla.edu/</a>
Deploy employment development programs and partnerships to prevent and reduce student homelessness			
Develop the next generation of student stewards to be leaders in climate and disaster resilience	-Corporate Partners Program (IoES)	-Jennie Dean, Corporate Partners Program Manager jdean@ioes.ucla.edu	<a href="https://www.ioes.ucla.edu/cpp/">https://www.ioes.ucla.edu/cpp/</a>
<b>Health (Lea)</b>			
Fortify public health and healthcare critical infrastructure and leverage partnerships with public health organizations to improve community health and wellness.	-ASHE Center -CalFresh Initiative -Lavender Health Alliance -Mobile Health Clinic	-CalFresh at UCLA team uclacalfresh@gmail.com -Lavender Health Alliance team lavenderhealthalliance@gmail.com -Mobile Health Clinic team liaison.mobiledclinic@gmail.com	<a href="https://www.facebook.com/LavenderHealthAlliance/">https://www.facebook.com/LavenderHealthAlliance/</a> <a href="https://www.mobiledclinicproject.org/">https://www.mobiledclinicproject.org/</a>
<b>Food (Lea)</b>			
Expand climate and emergency preparedness throughout our local food system	-DIG Coalition -Healthy Campus Initiative (EatWell) -CPO Food Closet -Campus Meal Voucher Program -Associated Students UCLA -Housing and Hospitality Services -CPO Food Bundle Program -UCOP GFI Fellows	-digucla@gmail.com -eatwell@ucla.edu -support@cpo.ucla.edu -ecr@saonet.ucla.edu -talk2us@asucla.ucla.edu -sustainability@ha.ucla.edu -For GR: Goetz Wolff, UCLA, gwloff@ucla.edu	<a href="http://digucla.weebly.com/">http://digucla.weebly.com/</a> <a href="https://eatwell.healthy.ucla.edu/">https://eatwell.healthy.ucla.edu/</a> <a href="http://www.cpo.ucla.edu/cpo/foodcloset/">http://www.cpo.ucla.edu/cpo/foodcloset/</a> <a href="https://www.brc.ucla.edu/Resources">https://www.brc.ucla.edu/Resources</a> <a href="https://asucla.ucla.edu/">https://asucla.ucla.edu/</a> <a href="https://housingandhospitalityservices.ucla.edu/">https://housingandhospitalityservices.ucla.edu/</a>
<b>Diversity (Lea)</b>			
Promote diversity in community leadership by pursuing policies and programs that develop more leaders reflecting the communities they represent	-UCLA Equity, Diversity, and Inclusion -UCLA Center for Accessible Education -Academic Advancement Program	-CAE: Administrative Offices - A255 Murphy Hall Hours: Monday - Friday, 8am - 5pm (310) 825-1501 -Charles J Alexander, AAP Director calexander@college.ucla.edu	<a href="https://equity.ucla.edu/">https://equity.ucla.edu/</a> <a href="https://www.cae.ucla.edu/">https://www.cae.ucla.edu/</a> <a href="https://www.aap.ucla.edu/units/courseing/">https://www.aap.ucla.edu/units/courseing/</a>

6c. Appendix C: A rendering of a sign intended to inform the general public on resilience and sustainable water practices at UCLA. A campus architect approved sign will be placed next to the 2017 SAR Resilience team's cistern project and serves as the education and outreach component of our project.

## UCLA Stormwater Capture System


Resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience. This student-led research project saves approximately 240,000 gallons of water per year by capturing rainwater in on-site storage tanks and reusing it for campus irrigation, thus increasing UCLA's local water supply and its ability to adapt both to long-term drought and immediate emergencies.




**System:** 7 - 4,100 gallon tanks  
**Water Savings:** 240,000 gallons per year  
**Cost Savings:** \$70,000 over 25-year lifespan of system


**UCLA Transportation**  
This project was assisted greatly by Tom Lukas, the assistant director of Facilities Management. UCLA Transportation intends to apply for Green Garage Certification with the help of this project.

**UCLA Sustainability**  
UCLA's Water Action Plan: 36% potable water reduction per capita by 2025.


 Sustainability Action Research (SAR) is a student-initiated, student-designed, and student-facilitated research program offered through the Institute of the Environment & Sustainability (IoES). Students on SAR Teams are partnered with a campus stakeholder to research, rethink, investigate, and tackle UCLA's greatest sustainability issues. Three teams over the course of four years have focused on enhancing resilience strategies at UCLA via designing, implementing, and educating the community of a new stormwater capture system.



2016: Kathleen Knight, George Yang, William Chen, Adam Gushansky, and Austin Park




2017: Manali McCarthy, Cayla Whiteside, Kathleen Knight, Ricardo Patlan, Lillian Wherry



2019: Nick Caton, Léa Le Rouzo, Anh-Vy Pham, Sophia Bozone, Tory Coffin, and David Scolari

This project was funded by The Green Initiative Fund (TGIF).



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6d. Appendix D: Vulnerable Populations Survey Questions used to inform the authors of UCLA's resilience plan.

### Section 1: Demographic Information

1. What is your ethnic background?
  - a. Black or African American
  - b. White (European)
  - c. White (Middle Eastern or North African)
  - d. Latinx or Hispanic
  - e. American Indian or Alaska Native
  - f. Asian
  - g. Native Hawaiian or Other Pacific Islander
  - h. Prefer not to answer
  - i. Other
2. Which of the following best describes your gender identity?
  - a. Female
  - b. Male
  - c. Genderqueer
  - d. Nonbinary
  - e. Prefer not to answer
  - f. Other
3. What is your age?
  - a. 18-23

- 
- b. 24-30
  - c. 31-40
  - d. 41-50
  - e. 50+
4. What is your university status?
- a. Undergraduate student
  - b. Graduate student
  - c. Doctoral student
  - d. Faculty
  - e. Staff
  - f. Other
5. Do any of the following categories best describe you?
- a. Undocumented student
  - b. Out of state student
  - c. First generation student
  - d. None of the above
6. Do you have any ongoing health challenges?
7. What is your current living situation?
- a. On campus housing
  - b. Off campus UCLA housing
  - c. Non-UCLA apartment within 2 miles of campus
  - d. Commuter
  - e. Housing insecure

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f. Other

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## Section 2: UCLA Services

1. Which of the following types of services offered by UCLA do you utilize?
    - a. Transportation (ie. Bruin Bus, Bruin Bike, etc.)
    - b. Healthcare (ie. free flu shots, UCSHIP, etc.)
    - c. Employment (ie. Career Center, Dream Resources Center, etc.)
    - d. Equity (ie. Student Legal services, Center for Accessible Education)
    - e. None
    - f. Other
  2. For which of the following documents have you felt you needed additional support in filling out?
    - a. Tax forms
    - b. FAFSA
    - c. Apartment applications/lease forms
    - d. Credit card applications
    - e. None
  3. Are there any services NOT offered at UCLA that you wish were offered?
-

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### Section 3: Vulnerable populations

1. Do any of the following factors make you feel vulnerable?
  - a. Financial insecurity
  - b. Housing insecurity
  - c. Food insecurity
  - d. Minority ethnic identity (non-white)
  - e. Living alone
  - f. No air conditioning
  - g. Lack of green space
  - h. Age
  - i. None
  - j. Other
2. On a scale from not at all to strongly affected, to what degree do the following shocks cause you stress?
  - a. Earthquakes
  - b. Wildfires
  - c. Extreme Heat
  - d. Debris flow/mudslides
  - e. Economic trends
  - f. News that impacts my racial or ethnic background
  - g. Political unrest in my or my family's country of origin

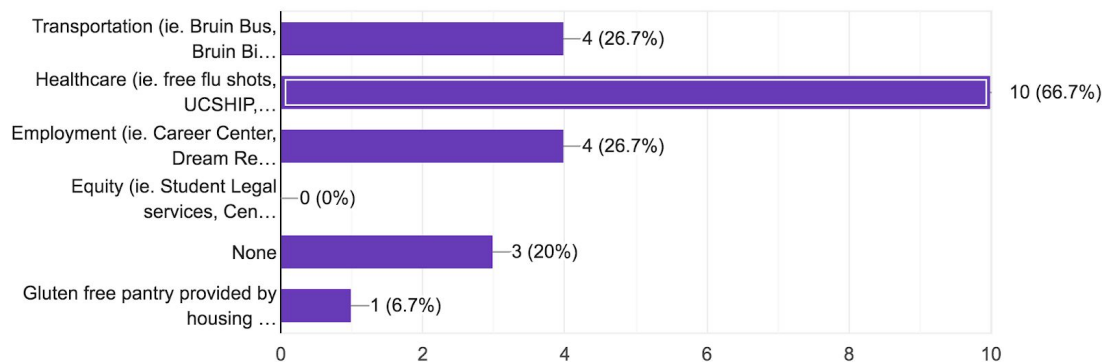


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3. On a scale from never to very often, how often have you felt affected by the following shocks?
- a. Earthquakes
  - b. Wildfires
  - c. Extreme Heat
  - d. Debris flow/mudslides
  - e. Economic trends
  - f. News that impacts my racial or ethnic background
  - g. Political unrest in my or my family's country of origin
4. Are there any other shocks, including natural disasters, political uncertainty, and financial hardship, that cause you significant amounts of stress?

6e. Appendix E: Survey Results (75 Responses) that reveal many things about UCLA's student body including the frequent use of healthcare services, desire for help with taxes, and vulnerability because of financial insecurity.

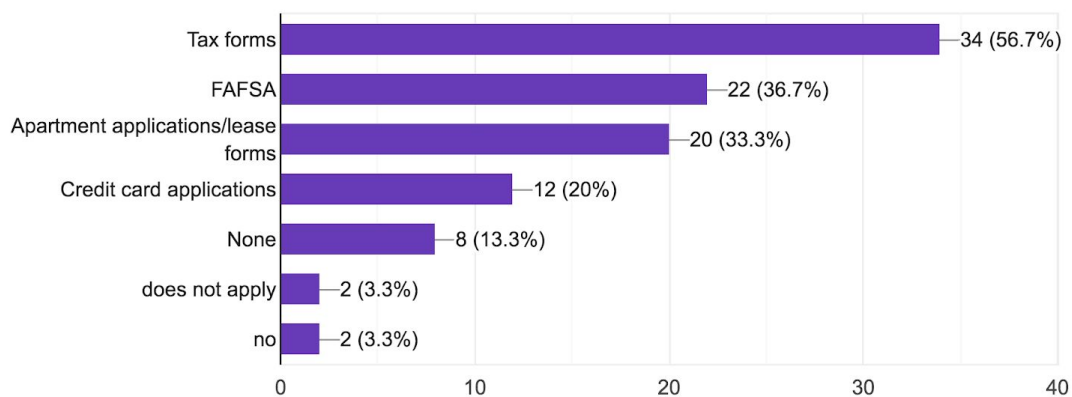
### Which of the following types of services offered by UCLA do you utilize?

15 responses



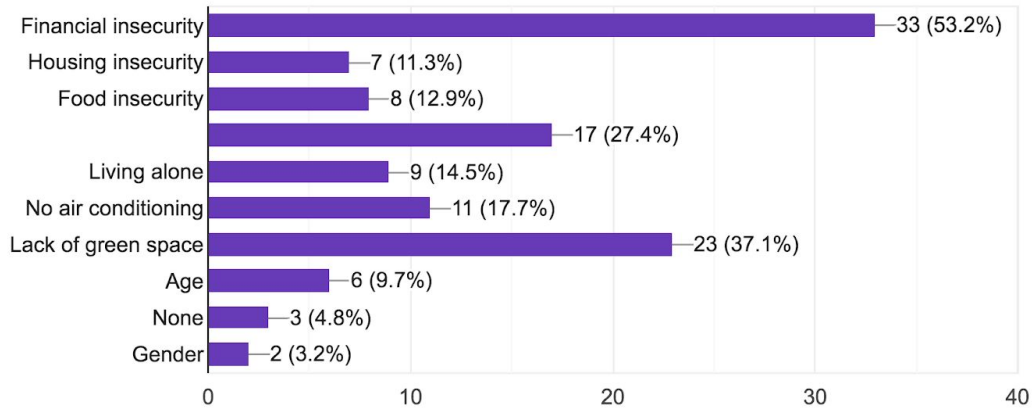
### For which of the following documents have you felt you needed additional support in filling out?

60 responses

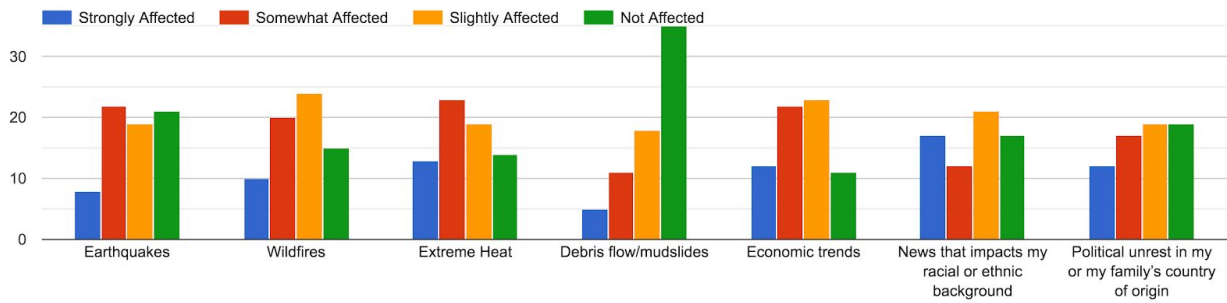


## Do any of the following factors make you feel vulnerable?

62 responses



## To what degree do the following shocks cause you stress?



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