Defending the Hidden Figures:
A Rebuttal of Erroneous Attacks on Merit-Based, Fair, and Competitive STEM Grants

Minority Staff Report
Prepared for Members of the Committee on Science, Space, & Technology
U.S. House of Representatives
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Pictured above: Senator Ted Cruz (R-TX) unveils "Hidden Figures Way" to honor underrepresented and marginalized women and minorities whose efforts made U.S. leadership in space possible. (June 2019)

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Introduction

In October 2024, Senator Cruz claimed to identify "3,483 grants—over 10% of all NSF grants awarded during the Biden-Harris administration—totaling more than $2.05 billion [that] went to questionable projects that promoted DEI or pushed neo-Marxist perspectives about enduring class struggle." These so-called findings were presented in a report, *Diversion. Extremism. Ideology: How the Biden-Harris NSF Politicized Science* (hereafter, referred to as 'Cruz Report'). Eventually, in February 2025, Senator Cruz released his database of grants he identified as "DEI" or "neo-Marxist." To assert that this report is technically flawed is an understatement. The authors lack a basic understanding of how National Science Foundation (NSF) awards are selected, the scientific literacy to discern technical terms with multiple meanings, and an understanding of laws, even those supported by Senator Cruz himself, that protect these activities. This resulted in a slew of embarrassing mistakes – for example, the authors' seeming failure to review their own database resulted in grants being flagged for using terms related to biodiversity or focusing on "female" leopard seals. At best, the Cruz Report is a sloppy mess that should be viewed as nothing more than the political hit job it is. However, the risks in today's political climate cannot be ignored. If the Cruz Report is taken seriously by federal science agencies, it jeopardizes the economic and national security of the United States through its McCarthyistic tactics, undermining the important work of scientific researchers, educators, and institutions who are acting in accordance with the law and making significant contributions to scientific and technological advancements and the growth of a skilled domestic STEM workforce.

Since the Cruz Report was published, the U.S. scientific enterprise has experienced devastating setbacks at the hands of the Trump Administration and Elon Musk, using the same tactics found in the Cruz Report. While the authors of the Cruz Report claimed to have the goal of strengthening scientific research, their work has had quite the opposite effect. It has caused severe damage and anxiety across the U.S. science enterprise, including the generation of "watch lists" that inspire far-right terrorists to personally threaten leading scientific and education professionals at our federal agencies.[1] Minority Science Committee Staff have written this staff report to detail the numerous flaws in the Cruz Report, discuss the harmful consequences to the U.S. STEM ecosystem, and emphasize the need and legal protections for these activities. This staff report corrects the record on the Cruz Report's findings to empower the National Science Foundation, and other federal science agencies, to reject this attack on the merit review process and continue funding important research that maintains U.S. leadership on the world stage.

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[1] *DEI watch list*. (n.d.). https://www.deiwatchlist.com/about

Background

National Science Foundation's Activities that Promote Representation in STEM

The National Science Foundation is an independent federal agency with a mission to promote the progress of science; advance the national health, prosperity, and welfare; and secure the national defense.[2] NSF is the only federal agency whose mission supports all fields of fundamental science and engineering. Approximately 5% of NSF's budget supports agency operations (staff, IT, etc.); the remainder is awarded primarily in the form of grants and cooperative agreements to academic institutions and other nonprofit research and STEM education organizations. While the bulk of NSF grants support scientific research – which itself is critical to the development of a STEM workforce – a sizeable fraction contributes to the development of a skilled STEM workforce through research and innovation in formal and informal PreK-12, undergraduate, and graduate STEM education, STEM teacher training, STEM education capacity-building at colleges and universities, and scholarships and fellowships.[3] In an average year, NSF funds around 11,000 competitive awards for research, education, and training; supports around 1,900 colleges, universities, and other institutions; and supports around 350,000 researchers, entrepreneurs, students, and teachers.[4]

Every American should have an equal opportunity to participate in the U.S. STEM enterprise. Moreover, ensuring such access across our nation is essential to our long-term economic security.[5] NSF supports a suite of Broadening Participation programs that seek to build career pathways into STEM fields without undermining the meritocratic and competitive values inherent in American science. These activities are no different than a baseball scout searching for talent in young athletes from backgrounds and locations historically underrepresented in the sport, to ensure that valuable talent isn't being overlooked simply because of geography or access; likewise, our federal research agencies fund activities that search for talent in backgrounds and locations historically underrepresented in STEM, lest promising talent be left undiscovered and therefore shut out from contributing to U.S. scientific excellence. These programs vary greatly in the populations they are targeting to promote educational access and opportunities in STEM. For example, NSF's "Disability and Rehabilitation Engineering (DARE)" program supports fundamental engineering research that improves the quality of life of persons with disabilities, while NSF's "Enabling Partnerships to Increase Innovation Capacity (EPIIC)" program supports capacity-building efforts at academic institutions with limited research resources.[6,7] Current metrics in the U.S. STEM workforce illustrate the importance of such broadening participation efforts:

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[2] *About NSF*. NSF - National Science Foundation. https://www.nsf.gov/about

[3] *Education and training*. (2025, March 5). NSF - National Science Foundation. https://www.nsf.gov/focus-areas/education

[4] *About NSF*. NSF - National Science Foundation. https://www.nsf.gov/about

[5] *The State of U.S. Science and Engineering 2024 | NSF - National Science Foundation*. (n.d.). https://ncses.nsf.gov/pubs/nsb20243/key-takeaways

[6] *Disability and Rehabilitation Engineering (DARE)*. (2023, June 16). NSF - National Science Foundation. https://www.nsf.gov/funding/opportunities/dare-disability-rehabilitation-engineering

[7] *Enabling partnerships to increase Innovation Capacity (EPIIC)*. (2023, September 26). NSF - National Science Foundation. https://www.nsf.gov/funding/opportunities/epiic-enabling-partnerships-increase-innovation-capacity

- Despite representing 14% of the U.S. population, U.S. residents living in nonmetropolitan or rural counties face challenges in their access to STEM education or workforce opportunities.[8]
- Despite representing half of the U.S. population, female workers accounted for only 26% of workers in science and engineering occupations in 2021.[9]
- Despite representing 19.5% of the U.S. population, Hispanic workers accounted for only 9.5% of workers in science and engineering occupations in 2021.[10]
- Despite representing 13.7% of the U.S. population, Black or African American workers accounted for only 6.8% of workers in science and engineering occupations in 2021.[11]
- Despite representing 1.3% of the U.S. population, American Indian or Alaska Native workers accounted for only 0.2% of workers in science and engineering occupations in 2021.[12]

The Cruz Report condemns grant recipients for talking about the work they did to bring underrepresented talent into STEM, but it fails to explain that those researchers are following the law in doing so. Pursuant to the *America COMPETES Reauthorization Act of 2010*,[13] NSF requires that every proposal for funding, in addition to making a case for scientific merit, describe how the project has the potential to benefit society and contribute to the achievement of a specific, desired social outcome.[14] NSF does not prescribe what a broader impact should be for each proposal, but many researchers cite activities such as public engagement, outreach to groups historically underrepresented in science, and pedagogical activities as part of their broader impacts proposal.

The Cruz Report authors made no effort to differentiate whether the 'woke' grants they flagged were problematic due to broader impact considerations, broadening participation activities, STEM education research, scientific research with a DEI-related purpose or using DEI-related words, or the federal designation of an institution itself. The authors make a mockery of their own conclusions by failing to take the elementary step of identifying and controlling for these variables in their analysis. As such, the Cruz Report contains numerous false positives alongside several other technical errors. In any scenario, eliminating broadening participation activities does not just undermine the ability of the United States to develop a competitive STEM workforce, but also prevents gifted Americans of all backgrounds from being able to contribute to groundbreaking discoveries and drive solutions to our most pressing societal problems.

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[8] K-12 STEM education and workforce development in rural areas. (2024). In *National Academies Press eBooks*. https://doi.org/10.17226/28269
[9] Arbeit, D. T. a. C. A. (n.d.). *The STEM labor force: scientists, engineers, and skilled technical workers | NSF - National Science Foundation*. https://ncses.nsf.gov/pubs/nsb20245/representation-of-demographic-groups-in-stem#women-in-stem
[10] Arbeit, D. T. a. C. A. (n.d.-b). *The STEM labor force: scientists, engineers, and skilled technical workers | NSF - National Science Foundation*. https://ncses.nsf.gov/pubs/nsb20245/representation-of-demographic-groups-in-stem#race-or-ethnicity-in-stem
[11] *Ibid*
[12] *Ibid*
[13] *America COMPETES Reauthorization Act of 2010 (2011 - H.R. 5116)*, Sec. 526.
[14] *Broader impacts*. NSF - National Science Foundation. https://www.nsf.gov/funding/learn/broader-impacts

Summary of Recent Efforts to Suppress, Remove, and Censor Science at the National Science Foundation

Senator Cruz published the report on October 9th, 2024 – originally without a corresponding list of the alleged 'DEI' grants.[15,16] Shortly following the publication of the Cruz Report, America First Legal Foundation, a conservative nonprofit founded by Stephen Miller, sued the agency for illegally concealing employment records of NSF agency officials.[17] Senator Cruz then released the database of alleged 'DEI' grants on February 11th, 2025.[18] In his press release, Senator Cruz stated that he "requested significant scrutiny of awards listed in the database." The grant database was also released in a publication by *The Daily Wire*, in which terms that matched Senator Cruz's DEI keywords were bolded, and the Senate Commerce Committee was cited as the source.[19]

Relatedly, in the early weeks of his administration, President Trump released several executive orders banning agency policies and activities related diversity, equity, and inclusion and gender, effective immediately.[20,21,22] In the wake of these orders, NSF performed several actions, including:

- Removal of the Document Library, which was an archive that preserved NSF documents to provide transparency into any changes in agency policy, descriptions, or programs to the scientific community.[23] The removal of this resource effectively hid several of the actions below from the public.

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[15] *New Cruz Investigation Reveals How Biden-Harris Diverted Billions from Scientific Research to DEI Activists. (2024, October 10). U.S. Senate Committee on Commerce, Science, & Transportation.* https://www.commerce.senate.gov/2024/10/new-cruz-investigation-reveals-how-biden-harris-diverted-billions-from-scientific-research-to-dei-activists

[16] For the purpose of this report, Science Committee Minority staff used the phrases 'DEI' and 'neo-Marxist' in ways that aligned with the use of those phrases in the Cruz Report. Please see Appendix III for more information on how the term 'DEI' has been used in policymaking.

[17] America First Legal. (2024b, November 13). *America First Legal Foundation v. National Science Foundation - America First Legal.* https://aflegal.org/litigation/america-first-legal-foundation-v-national-science-foundation/

[18] *Cruz-Led investigation uncovers $2 billion in woke DEI grants at NSF, Releases full database.* (2025, March 6). U.S. Senate Committee on Commerce, Science, & Transportation. https://www.commerce.senate.gov/2025/2/cruz-led-investigation-uncovers-2-billion-in-woke-dei-grants-at-nsf-releases-full-database

[19] Rosiak, L. (2025, February 10). *27% of National Science Foundation grants went to DEI projects, study finds.* https://www.dailywire.com/news/27-of-national-science-foundation-grants-went-to-dei-projects-study-finds

[20] The White House. (2025, January 21). *Ending radical and wasteful government DEI programs and preferencing.* https://www.whitehouse.gov/presidential-actions/2025/01/ending-radical-and-wasteful-government-dei-programs-and-preferencing/

[21] The White House. (2025b, January 22). *Ending illegal discrimination and restoring Merit-Based opportunity.* https://www.whitehouse.gov/presidential-actions/2025/01/ending-illegal-discrimination-and-restoring-merit-based-opportunity/

[22] The White House. (2025a, January 21). *Defending women from gender ideology extremism and restoring biological truth to the federal government.* https://www.whitehouse.gov/presidential-actions/2025/01/defending-women-from-gender-ideology-extremism-and-restoring-biological-truth-to-the-federal-government/

[23] *Document Library | NSF - National Science Foundation.* (n.d.). https://web.archive.org/web/20241127175104/https://www.nsf.gov/publications/

- Removal of scientific data and undisclosed, post-hoc editing of technical publications, including survey data in the 2023 National Survey of College Graduates by the National Center for Science and Engineering Statistics.[24]
- Elimination of the Chief Diversity and Inclusion Officer position, an appointment required by Sec. 10327 of the *CHIPS and Science Act*.[25,26,27]
- Removal of language from their websites indicating public commitments related to DEI, such as "The U.S. National Science Foundation is committed to expanding the opportunities in STEM to people of all racial, ethnic, geographic and socioeconomic backgrounds, sexual orientations, gender identities and to persons with disabilities."[28]
- Archiving several *Dear Colleague Letters* associated with DEI, climate change, minority-serving institutions, LGBTQI+ individuals, broadening participation, and Biden-Harris Administration executive orders.[29]
- Removal of "NSF Supports DEIA" career landing page, which detailed employee resource groups, including those focused on mental health, and special interest groups.[30]
- Removal of several sections of the Broadening Participation in STEM Page, including a list of related reports, studies, analyses, and resources.[31]
- Censorship and removal of countless phrases associated with DEI, gender, and climate change.

On January 27th, 2025, the Office of Management and Budget issued an illegal temporary pause of agency grant, loan, and other financial assistance programs to the heads of executive departments and agencies to comply with existing Trump Executive Orders.[32] NSF complied with this order by removing the ability of awardees to access obligated funds on the Award Cash Management System between January 28th and February 3rd.[33] During this grant freeze, NSF also

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[24] *National Survey of College Graduates (NSCG) 2023 | NSF - National Science Foundation*. (n.d.). https://web.archive.org/web/20250114161649/https://ncses.nsf.gov/surveys/national-survey-college-graduates/2023

[25] *Leadership*. (n.d.). NSF - National Science Foundation. https://web.archive.org/web/20241128150817/https://new.nsf.gov/about/leadership

[26] *CHIPS and Science Act (2022 - H.R. 4346)*, Sec. 10327

[27] Mervis, J. (2025, January 23). Trump's shutdown of federal diversity office at NSF breaks law that created it. *Science*. https://www.science.org/content/article/trump-s-shutdown-federal-diversity-office-nsf-breaks-law-created-it

[28] *Broadening participation in STEM*. (2024, October 24). NSF - National Science Foundation. https://web.archive.org/web/20241127164412/https://new.nsf.gov/funding/initiatives/broadening-participation

[29] *Funding search*. (2025, March 13). NSF - National Science Foundation. https://www.nsf.gov/funding/opportunities

[30] *NSF supports DEIA*. (n.d.). NSF - National Science Foundation. https://web.archive.org/web/20241213123954/https://new.nsf.gov/careers/nsf-supports-deia

[31] *Resources*. (n.d.). NSF - National Science Foundation. https://web.archive.org/web/20241201022314/https://new.nsf.gov/funding/initiatives/broadening-participation/other-resources

[32] *OMB issues and rescinds memo ordering pause of federal funding | AAMC*. (n.d.). AAMC. https://www.aamc.org/advocacy-policy/washington-highlights/omb-issues-and-rescinds-memo-ordering-pause-federal-funding

[33] Boodman, E. (2025b, February 7). National Science Foundation restores payments after five-day pause, but worries over science funding persist. *STAT*. https://www.statnews.com/2025/02/02/nsf-national-science-foundation-payments-resume-after-trump-freeze/

announced that it would reexamine obligated, merit-reviewed, existing awards to comply with political directives of the Trump Administration.[34] NSF staff were instructed by NSF leadership to review approximately 10,000 grants that were flagged for containing one of dozens of keywords and follow a set matrix for each, either clearing the grant as being in compliance with the Trump EOs or putting it aside for more in-depth review for potential lack of compliance.[35,36] Science Committee Minority staff verified that all of the keywords used by NSF in their review of awards match those that were used to flag 'DEI' grants in the Cruz Report.

These actions ignored both statute and long-standing agency policy in determining which awards are funded by the agency. NSF is now providing proposers with conflicting guidance that endangers the applicant's proposal. On March 14th, 2025, NSF updated their website to inform proposers that they should not avoid problematic keywords to make their proposal compliant with executive orders.[37] Post-hoc reviews of grants for terms disfavored by Senator Cruz and the Trump Administration are now occurring at other federal research agencies, resulting in terminations of grants at the National Institutes of Health.[38] NIH has been canceling dozens of grants related to HIV/AIDS research. Many populations historically underrepresented in medicine have a disproportionately high risk of contracting HIV. We can connect the dots. Can you?[39]

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[34] Mervis, J. (2025, February 4). NSF reexamines existing awards to comply with Trump's directives. *Science*. https://www.science.org/content/article/nsf-reexamines-existing-awards-comply-trump-s-directives

[35] Mervis, J. (2025a, January 30). EXCLUSIVE: NSF starts vetting all grants to comply with Trump's orders. *Science*. https://www.science.org/content/article/exclusive-nsf-starts-vetting-all-grants-comply-trump-s-orders.

[36] Johnson, C. Y., Dance, S., & Achenbach, J. (2025, February 6). Here are the words putting science in the crosshairs of Trump's orders. *The Washington Post*. https://www.washingtonpost.com/science/2025/02/04/national-science-foundation-trump-executive-orders-words/

[37] *NSF implementation of recent executive orders*. (n.d.). NSF - National Science Foundation. https://www.nsf.gov/executive-orders#keywords

[38] Wu, K. J. (2025, March 14). The NIH's grant terminations are 'Utter and complete chaos.' *The Atlantic*. https://www.theatlantic.com/health/archive/2025/03/nih-grant-terminations/682039/

[39] Christensen, J. (2025, March 5). 'People will die based on these decisions': Trump administration cuts funding for dozens of HIV studies. *CNN*. https://www.cnn.com/2025/03/25/health/hiv-research-funding-cut/index.html

Methodology

The authors of the Cruz Report searched NSF's database of awards (retrieved from USASpending.gov, also searchable on NSF.gov) for variations of terms they deemed "DEI keywords and phrases." Their full description of their approach is provided in Appendix I of this report. A combination of undisclosed Python code, Excel formulas, and human review were used to reach the final list of awards targeted for review. By their own admission, the authors personally reviewed fewer than half of the grants that were flagged by their keyword search. Of those reviewed, the authors found 2% to be incorrectly identified. Assuming the same portion of the non-reviewed grants are also incorrectly identified, more than 70 of the grants identified do not belong on this list even by Senator Cruz's standards.

If a keyword was only mentioned once, the grant was cleared; if it was mentioned more than once, it remained on the list of questionable grants. This approach lacks rigor, transparency, and repeatability. The methodology does not adequately handle keyword context, data deduplication, text cleaning for n-gram analysis, or labeling of organization type. We elaborate on these issues below:

- Disambiguation: While the Cruz analysis claims to have taken steps to account for the context of keywords, such as 'diversity' in 'diversity of biomes', they did not apply robust analytic techniques to obtain semantic understanding, such as terms relating to biodiversity, that had nothing to do with DEI. Their approach consisted of applying a *categorization qualifier formula* in Excel – without the formula logic disclosed – and filtering out awards without multiple keyword matches followed by a manual review in which "the Committee searched for grants that used words that have multiple meanings […] and then removed those without true scientific purpose." The definition of a grant with "true scientific purpose" is not provided, nor is the list of words they considered to have multiple meanings, contributing to the lack of transparency and repeatability of their analysis.
- Text cleaning / pre-processing: The methodology does not account for data cleaning or pre-processing steps. An n-gram analysis would generally involve transparent and repeatable cleaning and pre-processing to handle special characters, formatting, and word variations in the text corpus being searched using techniques like stemming and lemmatization. Normalizing text into its base form, which was not performed or disclosed in this report, can improve accuracy. In addition, analysis of possible duplication was not performed or disclosed in this report, though Science Committee Democratic staff found that 14% of the award descriptions were found to be duplicates with no acknowledgement or description of award relationships.
- Mislabeling and misrepresentation: The authors of the Cruz report mislabel nonprofit organizations as for-profit entities, and they cite yearly funding totals for NSF that represent only a portion of the actual number reported by the agency, skewing their overall analysis.

In order to more clearly demonstrate the many flaws in the Cruz Report, we describe here what a robust approach to identifying awards for review might look like. For example, a serious review of NSF awards would identify the primary and secondary goals of each award based on the

award description, as well as which described activities serve as a response to statutory requirements, such as broader impacts criteria or broadening participation activities. We would also suggest using an automated approach to identifying relevant research topics in each award, which could enable subsequent human reviewers to more quickly consider how the research contributes to advancement in critical areas. This could be achieved through traditional machine learning approaches such as topic modeling or by integrating free open-source language models into the Python tool developed by the Cruz Report authors and prompting for primary and secondary goals of each award description.

Even without the use of more sophisticated approaches, the authors could use their existing Python keyword search tool to identify components of each award description that might indicate the criticality of the award in a given area. In this report, we perform some of this analysis with the aim of demonstrating how the Cruz Report authors could easily use the tools, already at their disposal, to conduct a more thorough analysis of awards and their potential impacts by simply using different keyword inputs across several critical technology areas.

To demonstrate additional steps which could have been taken to identify potential impacts, we ingested the data publicly released by Senator Cruz as well as 3 datasets used to analyze the potential impact of targeting these projects. These datasets include:

- Universities: A list of Institution of Higher Education names classified as MSIs, HBCUs, MSIs, or TCUs, available in the press release accompanying this report
- States: A list of states and associated percentage of votes for Donald Trump or Kamala Harris in the 2024 U.S. presidential election, available in the press release accompanying this report
- Keywords: A list of keywords in critical technology and research areas identified by Science Committee professional staff, available in the press release accompanying this report

Standard cleaning and pre-processing steps were performed, including accounting for text case, duplicate awards, and special characters before joining *States* and *Universities* on 'RECIPIENT STATE' and 'RECIPIENT STATE OF PERFORMANCE' to obtain the data for figures in *Cruz Report Demands Cancelation of Grants that Serve EPSCoR states and Rural, Veteran, or Religious Communities* and *Cruz Report Demands Cancelation of Funding to Minority Serving and Rural Academic Institutions*. We then analyzed 'AWARD DESCRIPTIONS' to identify awards containing any of the keywords in Appendix II to obtain the data referenced in *Impacts of Senator Cruz's Reckless Attacks*. Any analysis that relies upon the database compiled by the authors of the Cruz Report will be limited by its shortcomings. In an attempt to perform as robust an analysis as possible with this limitation, Science Committee staff vetted their methodology with subject matter experts outside the committee.

Cruz Report Disregards Congressional Statute Requiring NSF's "Broader Impacts"

> ***42 USC 1862p-14*: Broader Impacts Review Criterion**. The Foundation shall apply a broader impacts review criterion to identify and demonstrate project support of the following goals:
> (1) Increasing the economic competitiveness of the United States.
> (2) Advancing of the health and welfare of the American public.
> (3) Supporting the national defense of the United States.
> (4) Enhancing partnerships between academia and industry in the United States.
> (5) Developing an American STEM workforce that is globally competitive through improved pre-kindergarten through grade 12 STEM education and teacher development, and improved undergraduate STEM education and instruction.
> (6) Improving public scientific literacy and engagement with science and technology in the United States.
> **(7) Expanding participation of women and individuals from underrepresented groups in STEM.**

NSF requires that every NSF proposal, including those for scientific research, include a "broader impacts" proposal describing activities the research team will undertake to help ensure that the outcome of the funded work benefits society and contributes to the achievement of specific, desired social outcomes.[40] Such outcomes could include (but are not limited to) "expanding participation of women and individuals from underrepresented groups in STEM." [41] The *America COMPETES Reauthorization Act of 2010 (42 USC 1862p-14)* legally mandated the Broader Impacts criterion in the review of all NSF awards. The Senate passed these bill provisions by unanimous consent in 2010.[42] A reauthorization of the broader impacts criterion under the *American Innovation and Competitiveness Act* was similarly passed by the Senate by unanimous consent and was signed into law on January 6th, 2017, when Senator Cruz was already a sitting Senator.[43] Notably, that bill was developed in the House by former Science Committee Chairman Lamar Smith (R-TX), who also regularly questioned the value of much of NSF's funded science.[44] Neither NSF nor the law prescribes what broader impact goal is applicable to any particular proposal, but many researchers cite activities such as public engagement, outreach to groups historically underrepresented in science, and pedagogical activities to fulfill the criterion. Many of these broader impact activities are unrelated to the core work being performed in the grant and reflect common-sense activities, such as participating in science museum

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[40] *Broader impacts*. NSF - National Science Foundation. https://www.nsf.gov/funding/learn/broader-impacts
[41] *42 USC 1862p-14: Broader Impacts Review Criterion*.
(n.d.). https://uscode.house.gov/view.xhtml?req=(title:42%20section:1862p-14%20edition:prelim)
[42] *America COMPETES Reauthorization Act of 2010 (2011 - H.R. 5116)*. (n.d.).
GovTrack.us. https://www.govtrack.us/congress/bills/111/hr5116
[43] *American Innovation and Competitiveness Act (2017 - s. 3084)*. (n.d.).
GovTrack.us. https://www.govtrack.us/congress/bills/114/s3084
[44] *Smith Introduces Bipartisan Bill to Ensure NSF Research Advances 'National Interest.'* House Committee on Science, Space, and Technology. https://science.house.gov/2015/7/smith-introduces-bipartisan-bill-ensure-nsf-research-advances-national-interest

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exhibits or performing science outreach in partnership with local schools. These efforts are critical to getting American scientists out of the university and engaging more with the public.

As it turns out, most of the grants flagged in the Cruz Report were flagged for their broader impacts work, rather than the core scientific research project. The Cruz Report does not reference "broader impacts" in any form throughout the text or acknowledge this important context. We provide numerous examples below.

Examples of Senator Cruz Disregarding NSF's "Broader Impacts"
Flagged 'DEI' grants to universities. **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*

EXAMPLE 1. GRANT TO VILLANOVA UNIVERSITY.
EAGER: Transient cerebrospinal fluid (CSF) flow in brain concussion. Impacts to the head are identified as the common cause of concussion injury. An estimated 2.8 million people in the us sustain a **traumatic** brain injury (TBI) annually which contributes 30.5% of all injury-related deaths and costs an estimated $60 billion annually. To develop effective prevention and intervention strategies, it is critical to understand how the cerebrospinal fluid (CSF)-bathed brain responds to sudden external impacts and what mechanical and cellular mechanisms drive the pathological development of concussive brain injury. However, due to the brain's forbidding complexity, the small confines of the subarachnoid space (SAS) between the skull and the brain, the extremely transient feature, and the skull's opacity preventing direct visualization of any complex physical interactions between the CSF flow and the compliant brain, the mechanism of brain concussion remains unclear. The proposal is aimed to tackle this challenging problem by integrating innovative analytical, numerical, and biomimetic approaches with concussion animal models to reveal, for the first time, the crucial roles of transient CSF flow during brain concussion. The project will fill a glaring knowledge gap, with high-payoff feature ensuing from its potentials to guide the creation of effective head protection, reduce the incidence of concussion, lead to significant cost savings, and benefit the society by saving lives. The project will also encompass significant educational activities, including curriculum reform, multi-year undergraduate research program, and outreach programs for annual Girl Scouts Day and high school academy for **underrepresented minorities** at Villanova University (VU), the VU athletic department and the local public libraries. The goal of the project is to examine the transient cerebrospinal fluid flow in the porous subarachnoid space (SAS) filled with arachnoid trabeculae (AT), as the head is exposed to rapid external impacts, and hence to elucidate the critical role of the CSF flow in transmitting and mitigating external impacts. The proposal integrates analytical, numerical, experimental (biomimetic and biomechanical) investigations, built upon solid and encouraging preliminary study results. Analytical and numerical models, capturing the key CSF flow physics that have been neglected to date, will be tested using a novel biomimetic experimental platform, and further evaluated by in vivo biomechanical study. The proposal is the first, and so far, the only study of its kind to attempt to uncover a long-standing mystery in brain biomechanics. It is expected to yield highly transformative results and provide the platform for future study in this research area. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

EXAMPLE 2. GRANT TO NEVADA SYSTEM OF HIGHER EDUCATION
Control of dentate gyrus function and context discrimination by CKK+ interneurons. Efficient memory processes rely on our brain's ability to store similar experiences as distinct memories. This process, performed in part by a structure in the brains of mammals called hippocampus, facilitates memory discrimination and is affected in brain disorders like dementia and post-traumatic stress disorders. As a result, animals and people suffering from these disorders experience difficulties recalling or accurately

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retrieving memories. Our understanding of how the hippocampus encodes similar experiences as distinct memories, allowing for easy discrimination during recall, is still limited. Recent advancements in neuroscience suggest that coordinated activity between excitatory and inhibitory neurons enables a specific computation known as pattern separation within the hippocampal circuit. This computation transforms similar input patterns into highly dissimilar output patterns and is thought to be the basis for memory discrimination. In the proposed research, the investigators aim to determine the contribution of a specific type of inhibitory neurons called cholecystokinin-expressing (CKK) neurons to the hippocampal circuit's function. Their long-term goal is to enhance our understanding of critical computations, like pattern separation, performed by this brain region, which are crucial for memory discrimination. As part of this project, the investigators also provide a strong educational and training environment to students and new generations of scientists with a strong emphasis in recruiting and training **minorities** and under-represented groups in STEM, and they participate in outreach programs, such as the big brother big sister event organized by the Reno Museum of Natural History, which they use as a platform to share their research with the general public and students of all ages. The investigators aim to determine the contribution of CKK neurons to hippocampal circuit function, focusing on the plasticity of CKK neurons during the developmental period of juvenile mice. Their previous work demonstrates that environmental enrichment (EE) leads to increased synapses formed by CKK neurons in the dentate gyrus, suggesting their involvement in the maturation of hippocampal function and pattern separation. For the proposed work, they use an EE paradigm in mice and take advantage of viral mediated gene delivery technique combined with optogenetic approaches to manipulate the activity of the CKK neurons. They determine how the remodeling of the inhibitory CKK network adjusts the computation in the DG. In the first objective of the project, they determine the contribution of CKK neurons to feedback and feedforward inhibitory microcircuits, both of which can impact pattern separation. In the second objective, they measure the change in pattern separation and filtering performance of the DG induced by the EE using a novel in-vitro electrophysiological protocol. Together their research aims to unravel the mechanisms underlying pattern separation by exploring the involvement of CKK neurons in the hippocampal circuit. By increasing our understanding of these fundamental computations, they will shed light on the processes that support efficient memory functioning and potentially contribute to the development of novel therapeutic approaches for memory-related disorders. This project is jointly funded by the modulation program of the neural systems cluster in the BIO Directorate and the Established Program to Stimulate Competitive Research (EPSCoR). This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

EXAMPLE 3. GRANT TO BRANDEIS UNIVERSITY
Dynamic pathways to crystallization of DNA-coated colloids - Nontechnical abstract crystallization.
The spontaneous ordering of atoms, molecules, or other small particles has fascinated humankind for centuries. The study of crystallization has led to fundamental developments in our understanding of matter, for example, how water freezes to become ice. Crystallization is also central to a wide variety of important industries, ranging from microelectronics to pharmaceuticals. Yet, despite the ubiquity of crystallization in both fundamental and applied science, many mysteries regarding the dynamics of crystallization remain. The scientific objective of this research project is to understand the dynamic pathways by which crystals form and to use that understanding to develop new methods for making macroscopic single crystals with exotic materials properties. The research will reveal new fundamental knowledge about the physics of crystallization and lay the foundation for programmable nanomaterials of the future, which could find applications in optical communications, light-harvesting, and other next-generation technologies. The research project also trains students in the interdisciplinary field of soft condensed matter physics and engages the public in conversations about science. More specifically, the research team is developing student-led, student-focused summer programs designed to provide undergraduate students with practical hands-on training in the laboratory, while also

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promoting **diversity and inclusion** by creating a community of researchers and reinforcing group cohesion. The team is also creating outreach activities with a local science museum focused on enhancing interest and scientific literacy in the surrounding community.

Technical Abstract: The goal of this research project is to understand the fundamental thermodynamic and kinetic driving forces that govern the dynamic pathways to crystallization, and to develop practical strategies for controlling those pathways to create new optical metamaterials from DNA-coated colloids. The proposed research is organized around two specific studies. In the first study, the research team is exploring how the kinetics of nucleation and growth emerge from the pair-interaction potential, as well as the details of the parent fluid phase and the child crystal phase. The research team uses an experimental approach combining droplet-based microfluidics with optical microscopy to systematically quantify the full dynamic evolution of hundreds of experiments running in parallel. They are also developing a suite of theoretical tools based on the statistical mechanics of multivalent interactions, classical nucleation theory, and classical theories of crystal growth to uncover microscopic information about the crystallization pathways and to create a data-driven framework to guide the design of their experiments. In the second study, the research team is utilizing their fundamental understanding of nucleation and growth to create rational nonequilibrium protocols for forming single crystals with prescribed structures, which could be used in future applications in photonics and plasmonics. Here they draw inspiration from traditional industrial practices, such as slow temperature ramps, temperature cycling, multistep nucleation and growth protocols, and seeded nucleation. While existing studies have focused primarily on expanding the diversity of static structures that form in equilibrium, the research team is working to understand the rich dynamical pathways by which those structures self-assemble and to develop new approaches to control those pathways in order to assemble macroscopic programmable materials from colloids. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

Sorting the flagged 'DEI' grants by NSF funding division is another way to illustrate that the majority of grants have a primary purpose unrelated to broadening participation. Most NSF grants with the primary aim to broaden participation are awarded by NSF divisions with an emphasis on STEM education, including the Directorate for STEM Education's (EDU) Division of Undergraduate Education, Division of Research on Learning in Formal and Informal Settings, Division of Equity for Excellence in STEM, and Division of Graduate Education, as well as Directorate for Engineering's (ENG) Division of Engineering Education and Centers. The total flagged grant funding from these divisions is $654M, less than a third of the total funding reported in the Cruz Report as 'neo-Marxist' and 'DEI' grants. The total number of grants issued by these divisions is 919, comprising just 26% of the total number of grants in the Cruz Report's database. The remaining 74% of awards were made by other offices and divisions across NSF, representing the range of science, technology, engineering, and mathematics research funded by NSF. The table below displays the breakdown of grants and funding numbers by division, as categorized in the Cruz database. As detailed in this report's Methodology section, the Cruz database was compiled with unreliable and unscientific methods. As such, any analysis performed on the database will have those same problems, e.g., 14% of the grants are duplicates. The table below should be considered with this in mind.

Directorate	Division	Number of Awards	Total
EDU	Division Of Undergraduate Education	379	$275,360,737.00
EDU	Div Of Research On Learning In	170	$121,080,477.00

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EDU	Division Of Equity For Excellence In Stem	161	$115,721,343.00
EDU	Division Of Graduate Education	87	$91,043,862.00
ENG	Div Of Civil, Mechan Manuf Innov	131	$57,590,635.00
ENG	Division Of Engineering Education	122	$51,141,481.00
ENG	Division Of Chemical Bioengineering	117	$36,952,483.00
ENG	Office Of Emerging Frontiers And	41	$31,476,597.00
ENG	Division Electrical, Communication	71	$29,292,452.00
ENG	Nat Nanotechnology Coordinating Ofc	1	$725,000.00
ENG	Division Of Industrial Innovation	3	$555,823.00
BIO	Emerging Frontiers	54	$40,679,292.00
BIO	Div Of Biological Infrastructure	70	$35,803,760.00
BIO	Div Of Integrative Organismal Sys	71	$35,215,466.00
BIO	Division Of Molecular And	46	$32,031,238.00
BIO	Division Of Environmental Biology	41	$23,713,225.00
CISE	Ofc Of Adv Cyberinfrastructure	42	$85,493,866.00
CISE	Div Of Computer Network Systems	139	$63,203,757.00
CISE	Div Of Infor Intelligent Systems	136	$46,457,263.00
CISE	Cise Information Tech Research	51	$23,579,124.00
CISE	Div Of Computer Comm Foundations	54	$20,885,463.00
GEO	Integrative And Collaborative	82	$59,342,875.00
GEO	Division Of Earth Sciences	73	$29,938,128.00
GEO	Division Of Atmospheric And	30	$26,587,497.00
GEO	Division Of Ocean Sciences	50	$23,964,696.00
GEO	Office Of Polar Programs	33	$15,094,755.00
MPS	Division Of Chemistry	71	$35,693,132.00
MPS	Division Of Materials Research	102	$31,476,112.00
MPS	Division Of Mathematical Sciences	113	$19,779,477.00
MPS	Division Of Physics	39	$18,868,710.00
MPS	Mps Multidisciplinary Activities	61	$18,288,464.00
MPS	Division Of Astronomical Sciences	15	$13,105,517.00
OD	Office Of Integrative Activities	138	$96,465,180.00
OD	Ofc Interntl Science Eng	41	$20,251,710.00
OIRM	Div Of Human Resource Development	80	$40,214,762.00
SBE	Div Of Social And Economic Science	150	$53,227,880.00
SBE	Div Of Behavioral Cognitive Sci	204	$48,593,042.00
SBE	Sbe Office Of Multidisciplinary Act	62	$17,767,175.00
TIP	Innovation And Technology Ecosystems	66	$178,086,953.00
TIP	Translational Impacts	55	$52,549,476.00
TIP	Technology Frontiers	29	$40,537,675.00
TIP	Strategic Partnerships Office	2	$881,355.00

Cruz Report Demands Cancelation of Sexual Harassment and Assault Prevention Projects

The National Science Foundation has several programs and research activities that aim to prevent sexual assault and harassment in STEM. The research is focused on better understanding the factors contributing to, and consequences of, sex-based and sexual harassment affecting individuals in the STEM workforce, including trainees. Several activities, including assessment and research approaches, were authorized in Sec. 10534 of the *CHIPS and Science Act* under the "Combating Sexual Harassment in Science" subtitle.[45] Despite the statutory direction and critical importance of these efforts, the Cruz Report attacked several projects aimed at preventing sexual harassment and assault. In the report authors' own words, "grants that involved Gender presented far-left ideological theories about men, women, and other identities. These grants went beyond attempts to provide opportunities to increase female participation in science. Many projects casually yet authoritatively asserted, without evidence, that white men were barriers to opportunity and emphasized the need to create 'identity-affirming environments' rather than invest in scientific research and development."

The zero-sum game presented here – that if we are investing in creating equal opportunities for women in male-dominated, often hostile spaces, then we are not investing in scientific research and development – is deeply ignorant. A 2023 study found that women obtaining undergraduate degrees in male-dominated STEM fields are nearly three times as likely to be raped as women in gender-balanced STEM fields.[46] While it fits Senator Cruz's worldview to assert that there is no "evidence" that men are "barriers to opportunity" for women in STEM, that study is just one example of how that is untrue. A 2018 National Academies report found that women who experience sexual harassment have statistically distinguishable outcomes from women who do not experience sexual harassment, and that "the net result of sexual harassment is therefore a loss of talent, which can be costly to organizations and to science, engineering, and medicine."[47] Not only are sexual assault and harassment morally abhorrent and unacceptable, but these actions in the STEM classroom and workplace are demonstrably harmful to the scientific enterprise writ large. The sexual harassment and assault prevention research projects demonized in the Cruz Report are critical in the effort to create safer research environments where all people can be welcomed as full participants.

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[45] *CHIPS and Science Act (2022 - Public Law No: 117-167)*, Sec. 10534
[46] *Study Suggests Women STEM Majors at Disproportionate Risk of Sexual Violence.* Georgia State University. https://news.gsu.edu/2023/03/19/study-suggests-women-stem-majors-at-disproportionate-risk-of-sexual-violence/
[47] *Sexual Harassment of Women.* National Academy of Sciences. https://nap.nationalacademies.org/catalog/24994/sexual-harassment-of-women-climate-culture-and-consequences-in-academic

Example of Senator Cruz Demanding Cancelation of Funding of Efforts to Prevent Sexual Harassment and Assault. *Flagged 'DEI' grant to a university.* **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*

CAREER: The Efficacy of Sexual Assault Mandatory Reporting Policies. Sexual assault is a serious threat to safety and educational access within institutions of higher education, especially for **women** and **underrepresented** groups. The U.S. Department of Education Office for Civil Rights has attempted to remedy this issue via Title IX guidance, instructing institutions to establish policies that can address sexual assault and ensure assault survivors' equal access to education. As colleges and universities interpret and implement federal legal directives, little attention has been paid to assessing whether the resulting policies achieve their intended aims. Many institutions have created policies that require most employees to report sexual assault they learn about to university officials, even if the person who experienced the sexual assault does not want to report. It is assumed that these mandatory reporting policies will increase reports and benefit survivors, but there is a lack of evidence to support those assumptions. Regaining a sense of autonomy and control is essential for survivors' healing after an assault, and some mandatory reporting policy practices may cause unintended harm. Therefore, understanding the effects and outcomes of college and university mandatory reporting policies for sexual assault is essential for creating policies that best support survivors and ensure equal access to education. This career project will collect qualitative data from both institutions of higher education (e.g., mandatory reporting policy text) and institutional members (i.e., faculty/staff members and students) at two institutions of higher education. The analysis of these institutional and individual-level data will achieve three research aims. Research Aim 1 will evaluate how institutional mandatory reporting policies are reflected in and deviate from faculty/staff and students' understandings and attitudes of those policies. Research Aim 2 will determine the impact of mandatory reporting policies on faculty/staff and students' behaviors and outcomes. Research Aim 3 will then elucidate faculty/staff and students' perspectives on mandatory reporting policy practices that afford survivors greater autonomy. These aims will support and be supported by education aims focused on enhance student training and dissemination in qualitative research methods and analysis, and through a graduate seminar and hands-on experience researching MR policies. Education Aim 2 will provide opportunities for institutional leaders and policymakers to learn about the use of qualitative research to evaluate and create evidence-based policy. Findings from this research will advance our understanding of how college and university mandatory reporting policies for sexual assault are translated from paper into practice, determine the efficacy of such policies for addressing sexual assault and supporting sexual assault survivors (e.g., ensuring their access to education), and facilitate evidence-based policymaking. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

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Cruz Report Demands Cancelation of Funding to Minority Serving and Rural Academic Institutions

STEM talent exists across the nation among students from all backgrounds. Although traditionally, research-intensive universities were the primary path for students to pursue advanced STEM degrees, NSF has made a concerted effort to support research and fund STEM capacity-building at diverse institutions across the country – diverse with respect to their size, the populations they serve, and their geographic setting. Many of these institutions, including rural-serving institutions, community colleges, and minority-serving institutions, focus on providing opportunities to populations that historically had limited access to STEM pathways. These collective NSF efforts have enhanced the agency's ability to support the development of a skilled domestic STEM workforce.

The Cruz Report calls for the cancelation of many scientific proposals simply on the basis of the institution's role in serving disproportionately minority populations. Many of the grants were flagged for 'DEI' terminology because the proposals, naturally, referred to the legally codified status of the institution – including terms such as Historically Black College and University (HBCU), Minority-Serving Institution (MSI), Hispanic Serving Institution (HSI), and Tribally Controlled Colleges and Universities (TCU), all codified in the *Higher Education Act of 1965 (HEA; P.L. 89-*329).[48] Many of these activities, especially those in collaboration with minority-serving institutions, were also codified in the *CHIPS and Science Act (P.L. 117-167)* and are protected by law. Although not a focus of our analysis, Alaska Native and Native Hawaiian-Serving Institutions (ANNHSI), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISI), Native American-Serving Nontribal Institutions, and Predominantly Black Institutions are additional institution types vulnerable to award cancelation if the Cruz Report's keyword-based strategy were implemented by federal science agencies, as the Senator desires. The Cruz Report also takes aim at several projects focused on broadening STEM workforce representation of rural, veteran, and disabled communities.

Case Study – University of Texas at El Paso, a Hispanic-Serving Institution

HSIs are defined in statute as nonprofit institutions of higher education with an enrollment of at least 25% Hispanic undergraduate full-time equivalent students.[49] HSIs vary widely in the scope of their academic activities; for example, the University of Arizona, University of Texas MD Anderson Cancer Center, New Mexico Military Institute, and San Jacinto Community College are all definitionally HSIs.[50] NSF has long funded proposals at HSIs, and it makes complete sense that the broader impacts activities described in those proposals often point to the institution's status as an HSI and the fact that the majority of its student population comprises

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[48] Dortch, C. (2018). Overview of Programs Supporting Minority-Serving Institutions Under the Higher Education Act. In *Congressional Research Service* (No. IF10959). Retrieved February 17, 2025, from https://crsreports.congress.gov/product/pdf/IF/IF10959/3

[49] *20 USC CHAPTER 28, SUBCHAPTER V, Part A: Hispanic-Serving Institutions.* (n.d.). https://uscode.house.gov/view.xhtml?path=/prelim@title20/chapter28/subchapter5/partA&edition=prelim

[50] Hispanic Association of Colleges and Universities (2022). Hispanic-Serving Institutions (HSIs) 2022-23. In *HACU Analysis of 2022-23 IPEDS Data*. https://www.hacu.net/images/hacu/OPAI/2024_HSILists.pdf

underrepresented groups. Either this didn't click for the authors of this report, or they see no problem with disqualifying HSIs for the sin of referring to their legally codified status. In his report, Senator Cruz demanded the cancelation of many grants for no discernible reason other than that the term "Hispanic" was flagged in the proposal.

Science Committee Members and university leaders saw this coming before Senator Cruz published his database. On February 5th, 2025, the House Committee on Science, Space, and Technology hosted a hearing entitled *The State of U.S. Science and Technology: Ensuring U.S. Global Leadership*. During the hearing, Representative Valerie Foushee directed a question to the panel of witnesses on the potential impact of the shoddy keyword-based methodology, warning that it could toss out all research "that has anything to do with people who aren't white, able-bodied men." But don't just take Democratic Members' and Committee staff's word for it. Among the responses to Rep. Foushee's question, former Republican Congresswoman and Trump-appointed Secretary of the Air Force, Dr. Heather Wilson, in her current capacity as President of the University of Texas at El Paso, stated the following:[51]

Quote from Dr. Heather Wilson, President of the University of Texas at El Paso

"I read the report as well and I identified some of the same things you did. Just because somebody… you know, my institution is a Hispanic-Serving Institution under Title V of the Higher Education Act. That appears, probably, in every grant that's submitted; which means that even if it is a piece of research on graphene particles, it will show up in [Senator Cruz's] report. So I question the methodology of the report. And I completely understand staff resources are limited on the Hill, I get that, but I wouldn't say that report was particularly dispositive. And if we're going to do word searches to identify, to eliminate large numbers that [policymakers] don't need to look at and then look at the others – fine – but let's go forward, not try to renegotiate grants and contacts [where] we've already got students hired and PhDs doing the work, and where this was probably something required and added on by the NSF, so let's move forward, not backwards."

Approximately one week after this hearing, Senator Cruz released his database of grants. He ultimately demanded cancelation of $15.6 million in NSF funding to the University of Texas at El Paso. We provide an example of an NSF Engine project flagged as a 'DEI' grant. This award would have provided $15 million in regional economic building for defense and aerospace engineering for Arizona and Texas through collaborations involving the University of Texas at El Paso. Reportedly for other reasons, this award is now on hold by NSF.[52]

Example of Senator Cruz Demanding Cancelation of a Grant to an HSI. *Flagged 'DEI' grant to University of Texas at El Paso.* **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*

NSF ENGINES: Paso del Norte Defense and Aerospace Innovation Engine. The Paso del Norte Defense and Aerospace Innovation Engine is working to fuel the growth of a dynamic aerospace and

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[51] The State of U.S. Science and Technology: Ensuring U.S. Global Leadership - *YouTube*. (n.d.). https://www.youtube.com/live/8HN1MjPHTfA?t=5694s

[52] Spencer, J. (2024, May 9). Letter sent to NSF reveals why UTEP Innovation Engine grant is under review. *KFOX*. https://kfoxtv.com/news/local/letter-sent-to-nsf-reveals-why-utep-aerospace-center-grant-is-under-review

defense (A&D) manufacturing sector in West Texas and southern New Mexico. The NSF ENGINE will increase the competitiveness of Paso del Norte small and medium manufacturers (SMMs) in A&D markets by creating an innovation platform that combines an emerging digital engineering paradigm, skilled workforce development, and other resources to reduce costs for startups and SMMs while increasing access to cutting-edge design and testing tools needed to spur growth. The NSF ENGINE re-imagines the Paso del Norte region as an advanced manufacturing and knowledge-based economy that increases the share of jobs in advanced industries in the region from 3.2% to 25%. This can be accomplished by redeploying local manufacturing capabilities to support U.S. A&D industries and upskilling the local talent workforce and expanding access for K-12 students to next-generation STEM skills so that more people in the region have a path to the middle class. SMMs remain extraordinarily critical to maintaining a vibrant and secure U.S. A&D supply chain, but fewer and fewer SMMs are participating in the defense industrial base. Because they often have a smaller workforce, limited resources, and no budget or infrastructure for research and development, SMMs are increasingly **excluded** from the highly stratified U.S. innovation ecosystem. The NSF ENGINE is tackling the national challenge of reinvigorating the once vital manufacturing base of the U.S. economy and increasing economic mobility and workforce participation in the Paso del Norte region through the creation of innovation sector jobs. Five of 14 defense critical technologies identified by the U.S. Department of Defense are included in the ecosystem: Advanced Materials; Trusted AI and Autonomy; Space Technology; Renewable Energy Generation and Storage; and Hypersonics. Paso del Norte is an eight-county region that sits on the U.S.-Mexico border in the American Southwest. It includes six counties in West Texas and two in southern New Mexico. The cities of El Paso and Las Cruces are the largest metropolitan areas in the region of service. The U.S. Economic Development Administration (EDA) designates six of the eight counties (Culberson, Doña Ana, El Paso, Hudspeth, Presidio, and Sierra) as persistent poverty counties, meaning that poverty rates have stayed above 20 percent for at least 30 years. The median income for families in this region is well below the national average and this gap has widened since 1997. One reason for low incomes is the lack of high-paying STEM jobs in the region, relative to other markets. To revitalize the U.S. A&D industrial base and propel the Paso del Norte region toward more economic parity and increased competitiveness, the NSF ENGINE will help SMMs to develop more innovation in their approaches and gain affordable access to defense-critical research and development. Some of the key components of the NSF ENGINE are new open-access physical and technical support infrastructures based at universities and facilities in the region that SMMs can utilize to build their innovation capacity and workforce talent. The NSF ENGINE's public innovation architecture will be an ecosystem that fosters engineering and manufacturing innovation to speed the development of capabilities among regional SMMs to access use-inspired R&D. This public innovation architecture is a way to disrupt the traditional R&D process by ensuring broad and affordable access to innovation processes. The public innovation infrastructure will be a combination of resources to develop hard and soft infrastructure, which includes expanding the available local skilled workforce, physical infrastructure in El Paso for SMMs, digital infrastructure that can be accessed throughout the region, and capacity building for innovation in translation and commercialization. This public infrastructure will reduce costs for startups and SMMs to enter and compete in the A&D market. The talent infrastructure supports the region's innovation industry through upskilling of local workforce talent and K-12 outreach to build interest in careers in the A&D industry. Project lead organizations, the aerospace center and the W.M. Keck Center for 3D Innovation at the University of Texas at El Paso have developed new approaches to solving the STEM talent crisis facing the nation with a unique student-centered research model. Skill development strategies have produced graduates who are in high demand because of their abilities to immediately provide value to employers. This research model excels at opening new pathways into the A&D sector for groups traditionally **underrepresented** in the workforce. The centers' students are 80% Latino, two-thirds come from families who make less than $37,000, and half are first-generation college students. The two centers are national leaders in training **female** engineers, 29% of their students are women, which is much higher than peer institutions in the same fields. The NSF ENGINE will expand this model with

a technician training program called Aerospace and Defense Technologies and Manufacturing Training Centers (ADTECH). A&D manufacturers often complain that new graduates of engineering and technician programs often lack the skills needed to be immediately productive and require expensive additional on-site training to be ready for the demands of their new job. The ADTECH skills development platform, which expands on the success of programs at UTEP, will use proven skills-focused strategies to train a technician workforce that can meet the demands of A&D and advanced manufacturing employers. This agile training platform will integrate best practices in vocational training including supporting an open talent ecosystem, digital learning opportunities, and comprehensive partnership coordination that meets the needs of local SMMs. The NSF ENGINE builds from significant investments and partnerships that have been developed over the two decades to fuel growth in this sector. This growth will lift the region's median income to the national average and increase the region's corporate footprint. The capital influx will spill over into other regional industries, creating broad and **inclusive** wealth building in this **historically** poor region where a majority of residents identify as Latino. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.- subawards are planned for this award.

HSIs are essential for promoting scientific literacy and workforce opportunities for Americans of all backgrounds. In his report, Senator Cruz ultimately demands cancelation of $60 million in funding to HSIs.

Historically Black Colleges and Universities

HBCUs are institutions founded long before the passage of the Civil Rights Act of 1964, with the intention of serving Black Americans locked out of many colleges and universities.[53] Examples of these institutions include North Carolina A&T University, Howard University, Florida A&M University, and Alabama State University. These universities offer Americans of all backgrounds accessible, affordable, and competitive opportunities to prepare for careers in STEM. Despite representing 13.7% of the U.S. population, Black or African American workers only represented 6.8% of workers in science and engineering occupations in 2021.[54] HBCUs continue to play an essential role in realizing a diverse and competitive U.S. workforce.[55] Despite this need, Senator Cruz calls for the cancelation of $64 million in funding for HBCUs. Many of these grants are for science and engineering research across a range of fields and have nothing to do with 'neo-Marxist' studies. The applicants' sin was to mention that the research team was likely to include students from groups historically underrepresented in science. Again, this can only be explained either by the authors' utter laziness preventing them from noticing erroneous inclusions of research that had nothing to do with 'woke' science, or a belief that extending opportunities to Black students at historically Black institutions should be disqualifying.

[53] *20 USC 1061: Definitions*.
(n.d.). https://uscode.house.gov/view.xhtml?req=(title:20%20section:1061%20edition:prelim)%20OR%20(granuleid:USC-prelim-title20-section1061)&f=treesort&num=0&edition=prelim
[54] Arbeit, D. T. a. C. A. (n.d.-b). *The STEM labor force: scientists, engineers, and skilled technical workers | NSF - National Science Foundation*. https://ncses.nsf.gov/pubs/nsb20245/representation-of-demographic-groups-in-stem#race-or-ethnicity-in-stem
[55] *Minority Serving Institutions*. National Academy of Sciences.
https://nap.nationalacademies.org/catalog/25257/minority-serving-institutions-americas-underutilized-resource-for-strengthening-the-stem

> **Example of Senator Cruz Demanding Cancelation of a grant to an HBCU.** *Flagged 'DEI' grant to Howard University.* **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*
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> *Collaborative Research: CISE-MSI: RCBP-RF: CNS: Enabling Secured and Artificial Intelligence Assisted Cell-Free Communications.* This award is funded in whole or in part under the American Rescue Plan Act of 2021 (public law 117-2). Although fifth-generation (5G) New Radio (NR) is being extensively implemented for multi-modal use-cases in cellular communications, including massive internet of things and ultra-reliable low-latency communications, new use cases have emerged as socio-economic needs continue to evolve, and 5G NR is unable to accommodate them. The cell-centric paradigm of wireless networks, constrained by inter-cell interference, is transitioning toward a ubiquitous cell-free infrastructure that is more user-centric and interference-resistant while providing users with macro-diversity. Low-complexity, high-throughput, ultra-reliable, and low-latency applications make the cell-free architecture an essential element of the next generation of communication systems. The aerial communication network has emerged as a promising topology for beyond 5G communications, where aerial communication nodes, e.g., drones, etc., will be served from the conventional base stations or terrestrial access points in a cellular or cell-free architecture, respectively, in conjunction with terrestrial users. This CISE-MSI project will investigate the potential, feasibility, infrastructure, and security of the cell-free aerial terrestrial integrated network (CF-ATIN) for the next generation of communication systems. The project will also develop the educational and recruiting capacity to train engineers from **historically underrepresented** engineering groups. This project will conduct a fundamental study on CF-ATIN, address several challenges in secured communication protocol design, and explore how to integrate advanced techniques in the network to enhance system performance while assuring low computational complexity. In particular, this project will (1) Address physical layer signal processing challenges inherent to CF-ATIN and develop artificial intelligence-driven solution approaches, (2) Explore how cell-free networks have synergic integration with other emerging applications for the next generation of wireless communication systems, such as free-space optics, (3) Conduct data sanitization for secured message transmissions and develop trust evaluation algorithm, and (4) Develop a prototype for CF-ATIN to implement the designed innovative algorithms. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

Tribally Controlled Colleges and Universities

TCUs are defined in statute as institutions formally controlled, sanctioned, or chartered by the governing body of an Indian tribe.[56] Although distinct from TCUs, Native American-Serving Nontribal Institutions also exist as a codified definition for institutions whose undergraduate student bodies are no less than 10% Native American and at least 50% recipients of Title IV needs-based assistance.[57] Examples of these institutions include Diné College, Navajo Technical University, Salish Kootenai College, Sinte Gleska University, and United Tribes Technical College. NSF has a long history of promoting higher education opportunities in STEM to Indigenous students who in turn use their STEM skills to bring such benefits to their

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[56] *25 USC 1801: Definitions.*
(n.d.). https://uscode.house.gov/view.xhtml?req=(title:25%20section:1801%20edition:prelim)%20OR%20(granuleid:USC-prelim-title25-section1801)&f=treesort&num=0&edition=prelim
[57] *20 USC 1059f: Native American-serving, nontribal institutions.*
(n.d.). https://uscode.house.gov/view.xhtml?req=(title:20%20section:1059f%20edition:prelim)#:~:text=20%20USC%201059f%3A%20Native%20American%2Dserving%2C%20nontribal%20institutions

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communities as the building of affordable homes, providing clean water, repair of infrastructure, prevention of detrimental environmental impact, and creating jobs.[58] Despite the positive impact of these programs for tribal communities, as well as the need for greater Indigenous representation in STEM, Senator Cruz demanded the cancelation of $4.3 million in NSF grants to TCUs and similar institutions.

Example of Senator Cruz Demanding Cancelation of a Grant to a TCU. *Flagged 'DEI' grant to Nebraska Indian Community College.* **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*

ICE-TI: NICC's Baccalaureate in Indigenous Environmental Health. A goal of the Tribal Colleges and Universities Program (TCUP) is to increase the Science, Technology, Engineering, and Mathematics (STEM) instructional and research capacities of specific institutions of higher education that serve the nation's indigenous students. Expanding the STEM curricular offerings at these institutions increases the opportunities for their students to pursue challenging, rewarding careers in STEM fields, provides for research studies in areas that may be culturally significant, and encourages a community and generational appreciation for science and mathematics education. This project at Nebraska Indian Community College (NICC) aligns with this goal through the development and delivery of the institution's first four-year STEM degree. Designed to specifically address indigenous community contexts, students who complete the degree will possess a strong, multidisciplinary understanding of environmental problems, their impacts on human health and well-being, and solutions to manage those issues. Data compiled through a feasibility study indicate that workforce demand for this expertise and skill set is strong in NICC's region, providing significant career opportunities for graduates and contributing to the community's economic stability. The new Bachelor of Science in Indigenous Environmental Health will build on NICC's existing Associate of Science in General Science Studies. Project activities for developing and delivering this degree include curriculum design, hiring of additional faculty, equipping and enhancing additional STEM laboratories, and securing accreditations for the degree. The curriculum will include partnerships with tribal elders and STEM professionals as students investigate local place-based environmental issues relevant to the indigenous community. Core program requirements include the successful completion of a set of upper-level courses across health, environmental, and indigenous science disciplines as well as the design and completion of both senior capstone and senior research projects. The delivery of this degree has the added significances of advancing NICC's STEM degree offerings to the baccalaureate level while providing **culturally responsive** career opportunities that will benefit its graduates and the community at large. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

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[58] Willis, A. (2023, July 5). *TCUs and NSF seek to increase representation in engineering*. Tribal College Journal of American Indian Higher Education. https://tribalcollegejournal.org/tcus-and-nsf-seek-to-increase-representation-in-engineering/

Community and Two-Year Colleges

Community colleges, as defined in statute, are nonprofit institutions of higher education, including many two-year state institutions of higher education, at which the highest degree awarded to students is an associate's degree.[59] Examples of these institutions include Alamo College District, Pima Community College, Santa Barbara City College, Montgomery County Community College, and MiraCosta College. These institutions, which often provide affordable career and education opportunities aligned with local industrial needs, are essential for creating a skilled workforce for emerging technologies. They also serve as a pathway for many students, especially low-income students, into a 4-year institution and eventually an advanced STEM degree. Despite the critical role that community colleges play in the development of a STEM workforce, Senator Cruz demanded the cancelation of several grants for programs at community or two-year colleges because they dared to describe how they serve diverse populations – including, as seen below, students with disabilities. Though it is currently fashionable for Republicans to direct extreme vitriol toward elite four-year universities, two-year colleges have largely escaped similar criticism, and Republicans and Democrats alike have seemed to agree that they are valuable for training a skilled workforce in communities across the country. But Senator Cruz appears to find it offensive and wasteful that this community college received an award to make it more effective and accessible for disabled students. Perhaps he would prefer they stay out of the student body and, consequently, out of the STEM workforce.

Example of Senator Cruz Demanding Cancelation of Funding for Community Colleges. *Flagged 'DEI' grant to American Mathematical Association of Two-Year Colleges.* **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*
Facilitating accessibility in STEM at two-year colleges. This project aims to serve the national interest by providing science and math faculty with practical skills to teach students with disabilities at two-year colleges. A greater proportion of the student population at two-year colleges have documented disabilities compared with four-year institutions. To improve **inclusivity** and diversity in STEM, it is important that students with disabilities achieve success at rates comparable to the whole population. While reasonable accommodations are provided for each student, more nuanced techniques will enhance the student experience, provide more opportunities for success, and give guidance to faculty. This training conference will bring expertise to science and math faculty at two-year colleges, engaging them in specific, practical, and immediately implementable skills to better engage with neurodivergent students, and students with visual, auditory, or mobility disabilities. Conference participants will learn techniques, initiate a community of practice to support each other, and become faculty liaisons within their own institutions and regional groups. The overall goal of this project is to convene a conference that prepares two-year college faculty to support students with disabilities. Participants in the conference will include two-year college faculty in math, physics, and chemistry. The conference will offer workshops to help faculty enhance student graphical literacy among students with visual disabilities, and to ensure laboratory safety for students with mobility disabilities. Participants will gain first-hand knowledge of accessibility challenges through a student-led science museum tour and a panel discussion. Disciplinary and cross disciplinary discussions will support the creation of communication channels to brainstorm specific strategies for **inclusive** teaching while providing opportunities for

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[59] *15 USC 9401: Definitions.*
(n.d.). https://uscode.house.gov/view.xhtml?req=(title:15%20section:9401%20edition:prelim)

participants to develop and facilitate similar workshops in their home institutions. The conference will be organized by the leaders of three two-year college professional organizations and convened in Minneapolis, Minnesota with expected attendance of 24 participants. Dissemination will involve multiple modalities, including presentations at conferences, professional disciplinary societies and a handbook of helpful practices will be widely distributed. The NSF program description on advancing innovation and impact in undergraduate STEM education at two-year institutions of higher education supports projects that advance STEM education initiatives at two-year colleges. The program description promotes innovative and evidence-based practices in undergraduate STEM education at two-year colleges. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

Women's Colleges

Women's colleges are private institutions of higher education that primarily or exclusively admit female students. Only about 32 active women's colleges exist in the United States, including Barnard College, Wesleyan College, Sweet Briar College, and Bryn Mawr College.[60] The importance of these institutions in creating access and opportunities for women in higher education, including in STEM, has been acknowledged by Congress.[61] Despite making up half of the U.S. population, women accounted for only 26% of workers in science and engineering occupations in 2021.[62] While they may not represent a significant fraction of the U.S. research enterprise, women's colleges are an important pathway for many women in STEM. Despite the important role they play, Senator Cruz called for cancelation of $1.3 million in grants to women's colleges. Why? Because they mention "women."

Example of Senator Cruz Demanding Cancelation of Funding for Women's Colleges.
Flagged 'DEI' grant to a Smith College. **Bold** *represents keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report.*
LEAPS MPS: Number-theoretic and combinatorial properties of increasing sequences of positive integers. This project aims to study increasing sequences of positive integers, such as the evens, the odds, prime numbers, and Fibonacci numbers. We will study increasing sequences by exploring complementary sequences, that is, sequences such that every integer appears in one of them and no integer appears in both. Any increasing sequence of positive integers can be thought of as part of a complementary pair by taking the other set to be all positive integers that are not in the given increasing sequence. Complementary sequences also may have applications in other areas. For instance, the so-called Beatty sequences have applications in pure and applied mathematics, music, biology, computer graphics, linear filters, and quasi-crystallography. Mathematicians use greedy algorithms, such as the minimum **excluded** (MEX) algorithm, to generate complementary sequences. In previous work, the PI discovered some surprising connections between the use of the MEX algorithm to generate Beatty sequences and continued fractions. This project will extend these findings

[60] *Women's College Coalition | Directory of Women's Colleges & Degrees.* (n.d.). https://www.womenscolleges.org/

[61] Ranger, Ms. G., DeLauro, Ms. D., & Balint, Ms. B. (2024). *Recognizing and thanking the Nation's women's colleges and universities and recognizing March 5 as '"National Women's Colleges and Universities Day."'* https://www.congress.gov/118/bills/hres1091/BILLS-118hres1091ih.pdf

[62] Arbeit, D. T. a. C. A. (n.d.). *The STEM labor force: scientists, engineers, and skilled technical workers | NSF - National Science Foundation.* https://ncses.nsf.gov/pubs/nsb20245/representation-of-demographic-groups-in-stem#women-in-stem

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to general complementary sequences. The significance of this research lies in uncovering new properties of positive integers and providing insights into problems studied using the MEX algorithm and continued fractions. These discoveries could also shed light on the applications of complementary sequences. Additionally, the PI will engage in educational and outreach activities enhancing diversity in mathematics, including forming an undergraduate research group and mentoring math-PhD-bound post baccalaureate students at Smith College (home to the center for **women** in mathematics), and conducting math outreach for middle/high-school students. The PI will also continue with his work in mentorship and engagement with people of Dominican descent in the U.S. More precisely, this research project can be described as follows: Classical results and recent developments in number theory, combinatorics, graph theory, combinatorial game theory and theoretical computer science are obtained by applying the MEX algorithm and generating complementary sets. Recently the PI introduced a novel generalization of the MEX algorithm which reveals, surprisingly, that applying the MEX algorithm to generate Beatty complementary sequences is equivalent to prepending digits to the continued fractions of irrational numbers. The PI has also shown that iterating the MEX algorithm gives rise to a dynamical system whose orbits have a parametric family of fixed points that are quadratic irrationals. These results lead naturally to the property that the even and the odd positive integers are invariant when applying the MEX to generate complementary sequences. The goal of this project is to study these connections between complementary sequences, the MEX algorithm, continued fractions, and dynamical systems, extending them to general complementary sequences, which includes all increasing sequences of positive integers. We will use combinatorial methods and standard techniques from analytic and additive number theory, following strategies that have been already employed by the PI. This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

Cruz Report Demands Cancelation of Grants that Serve EPSCoR states and Rural, Veteran, or Religious Communities

In their efforts to ensure a skilled 21st Century STEM workforce, federal agencies, including the NSF, have increasingly focused on including communities historically underrepresented in STEM, including communities that face discrimination based on their religion or disability, first-generation college students, persons who live in rural areas, veterans, and military spouses.[63] Despite the importance of ensuring that individuals across these communities have access to fair, competitive, and affordable pathways to the STEM workforce, Senator Cruz wants to cancel many of the projects that serve these groups.

EPSCoR. NSF's Established Program to Stimulate Competitive Research (EPSCoR) enhances the competitiveness of the nation through select investments in states and territories historically underrepresented in federal funding.[64] These states and territories, until FY 2027, include Alabama, Alaska, Arkansas, Delaware, Guam, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Puerto Rico, Rhode Island, South Carolina, South Dakota, Vermont, U.S. Virgin Islands, West Virginia, and Wyoming. Senator Cruz demanded the cancelation of $334.7 million in NSF funding for these states, even as Congress has repeatedly acted to reaffirm the importance of the EPSCoR program to our nation's future STEM workforce and scientific leadership.

Rural. Acting on recent provisions in the *CHIPS and Science Act*, NSF has a renewed focus on building upon STEM education investments in rural and remote communities.[65] These investments support and sustain high-quality learning, place-based learning, community-driven research, and dual enrollment opportunities in rural schools.[66] In addition to these efforts to broaden participation in rural areas, NSF funds critical research that benefits rural communities, including research related to extreme weather and agriculture. Yet despite a hand-waving parenthetical implying that rural areas deserve consideration that other "underrepresented, underserved, socioeconomically disadvantaged, or excluded" populations do not,[67] Senator Cruz demanded the cancelation of $231 million in awards with keywords including "rural."

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[63] Ibid.

[64] *EPSCOR criteria for eligibility*. (n.d.). NSF - National Science Foundation. https://www.nsf.gov/funding/initiatives/epscor/epscor-criteria-eligibility

[65] *Amplifying STEM Education Investments in and with Rural and Remote Areas and Communities*. (2024, December 20). NSF - National Science Foundation. https://www.nsf.gov/funding/opportunities/dcl-amplifying-stem-education-investments-rural-remote-areas

[66] Panchanathan, S. & Committee on Equal Opportunities in Science and Engineering (CEOSE). (2024). *Making visible the invisible: STEM talent of rural America*. https://www.govinfo.gov/content/pkg/CMR-NS1-00188078/pdf/CMR-NS1-00188078.pdf

[67] *Division. Extremism. Ideology. How the Biden-Harris NSF Politicized NSF*. Page 1. U.S. Senate Committee on Commerce, Science, & Transportation. https://www.commerce.senate.gov/services/files/4BD2D522-2092-4246-91A5-58EEF99750BC

Veterans. NSF is heavily committed to programs that benefit veterans, such as providing access to STEM education and workforce opportunities.[68] Some of these projects have focused on providing broad STEM education access to many groups, including veterans; others directly focus on research or education opportunities tailored to veterans. Senator Cruz demanded the cancelation of $40 million in awards with keywords including "veteran" in his report. Some of these referenced programs directly focused on aiding people with military service.[69] That speaks louder than any time Senator Cruz has thanked a veteran for their service.

Judaism. Senator Cruz flagged several grants relating to Hebrew study or international collaborations with Israel as awards that "advanced neo-Marxist warfare propaganda." One of these grants was focused on better understanding the differences between English and Hebrew (a gendered language), in which Senator Cruz argued the grant had an inappropriate focus on gender.[70] Senator Cruz also demanded the cancelation of six awards totaling $3.3 million for projects that involved collaboration with universities in Israel. This is despite the current administration prioritizing the U.S.-Israel relationship and claiming that seizing billions of dollars from institutions of higher education is an attempt to hold them accountable for alleged antisemitism.

States that Voted for Donald Trump in the 2024 Presidential Election. In his attack against liberalism and "neo-Marxism," Senator Cruz ultimately called for $982 million dollars of grants to be canceled in states that voted for Donald Trump in the 2024 election. Research funding – in this case, nearly a billion dollars – has concrete regional impact, creating jobs downstream and allowing surrounding communities and home states to maintain national and global scientific leadership. Is the Senator calling for a brain drain from those states?

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[68] *Veterans Research Supplement (VRS) program*. (2023, September 28). NSF - National Science Foundation. https://www.nsf.gov/funding/opportunities/dcl-veterans-research-supplement-vrs-program
[69] *USAspending.gov*. (n.d.). https://www.usaspending.gov/award/ASST_NON_2310556_4900/
[70] Lapin, A. (2025, February 13). Ted Cruz believes a grant to study Hebrew is 'woke DEI.' *Times of Israel*. https://www.timesofisrael.com/ted-cruz-believes-a-grant-to-study-hebrew-is-woke-dei/

Cruz Report Authors Frequently Misunderstand Simple Scientific Terms

Even a layperson would be shocked – and occasionally amused – by the Cruz Report's numerous scientifically illiterate claims. Several of the words included in Senator Cruz's keyword list refer not only to 'DEI' activities, but also to technical descriptions, or they have definitions outside the scope of diversity, equity, and inclusion, such as: traumatic, female, diversified, biased, inclusion, systematically, historically, victim, trauma, and barriers. After enumerating the many approaches they had to take to remove false positives, the authors state additionally that "[their] review of the grants still revealed some with scientific purpose, such as research that investigated the diversity of black holes. The Committee searched for grants that used words that have multiple meanings, such as 'barrier' and 'black,' and removed those without true scientific purpose." This review, however, missed many grants that had keywords relevant to projects with scientific value that should be obvious to any reader. Below, we list several of these mistakes and identify the field of study targeted by Senator Cruz's demand for cancelation. The bolded words in each example represent keywords that flagged the grant, per the Daily Wire's publication of the database, sourced by the authors of the Cruz Report. We encourage the Cruz Report authors to take advantage of NSF's Informal Science Education program to become more scientifically literate for their future work for the Senator.

Regenerative Medicine. "[…] Accordingly, engineering adipose tissues is of critical importance for understanding physiology and pathology (such as obesity and diabetes), and for repairing body surface defects that can result from **traumatic** injury and invasive surgical procedures. […]."

Neuroscience. "[…] This project investigates the extent to which **female** frogs choose mates using neural mechanisms that are susceptible versus resistant to confusion to understand how neural mechanisms in listeners shape the evolution of vocal behavior. […]"

Evolutionary Developmental Biology. "[…] Cis-regulatory basis of developmental plasticity and growth in the development and evolution of beetle horns, a class of highly **diversified** weapons […]"

Animal Ecology. "[…] Leopard seals are large predators in the Southern Ocean and an extreme example of **female**-biased dimorphism in mammals, where **females** are the larger than males. Yet, the effects of these size differences are unknown. […]"

Artificial Intelligence. "[…] The past decade has witnessed the success of deep learning in image processing and computer vision. However, increasing evidence has shown that deep neural networks are strongly **biased** towards seeing image textures rather than geometric shapes. […]"

Education Research. "[…] **Inclusion** of an elementary mathematics specialist on a team of teachers has potential to **systemically** improve mathematics education, build students' mathematical capacity to succeed, and increase student achievement in mathematics.[…]"

Accessibility and Assistive Technology. "[…] This project supports individuals with physical disabilities that result in **barriers** to learning and engaging in programming, blocking access to the widely available, lucrative, and upwardly mobile technology workforce. […]"

Agricultural Science. "[…] Mechanisms that **diversify** genomes, at both the sequence and epigenetic levels, underlie phenotypic variation. With accelerated climate change, it is essential

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that mechanisms **diversifying** crop genomes be understood and applied to feed future generations.[…]"

Developmental Biology. "[…] Cnidarians are excellent laboratory models for making fundamental biological discoveries in many scientific fields, including neurobiology, developmental biology, immunology, and ecology. New advances in technology are now allowing scientists to apply sophisticated technological approaches to this **historically** understudied group of animals.[…]"

Spectrum Management. "[…] As it stands, very little of the RF spectrum is dedicated to science, and the small amount of spectrum available can fall **victim** to neighboring RFI or re-allocation for commercial use in the wake of the growing demand for bandwidth in commercial applications.[…]"

Biotechnology. "[…] This project is disrupting the **status** quo and addressing an unserved market by developing a small, portable, automated, high throughput, and cost-effective system for extracting DNA from a variety of biosamples to prepare them for next-generation sequencing.[…]"

Medical Diagnostics. "[…] Smartphone time-resolved luminescence imaging and detection (stride) for point-of-care diagnostics -point-of-care (**poc**) sensors are powerful in-field tools to quickly diagnose infectious disease early enough to prevent rapid spread, detect foodborne pathogens in food-chains in real-time to ensure food quality and reduce food waste, distinguish trace biomarkers in cellular/tissue levels to alter physicians for early treatment, etc. […]"

Brain Injury. "[…] These models provide a realistic view of how the brain cells respond to injuries such as blast **trauma**. This work will reveal how astrocytes sense and respond to mechanical **trauma**. […]"

Materials Science. "[…] Additionally, this research team believes that the creation of a molecular phototransistor sensitive to light color and **polarization** is realizable. The key goals are: (1) to determine why voltage-controlled switching is not simply restricted to the interface. (2) to identify the energy **barriers** to spin state switching and the origin of these energy **barriers**. […]"

Polymer Science. "[…] The central hypothesis of this project is that equilibrium advanced sampling methods can be used to directly calculate the nucleation **barrier** to test these new theories. While new to polymer crystallization, advanced sampling methods have been used study nucleation in other fields, and they have distinct advantages over other methods. Accordingly, this project will focus on a study of the nucleation **barrier** for folded-chain crystals as a function of polymer molecular weight and as a function of polymer chemistry. […]"

Impacts of Senator Cruz's Reckless Attacks

We wish it were as simple as writing off the Cruz Report as lacking any substance or credibility. Credible or not, the Cruz Report has sent a chill across the scientific community and slowed scientific progress across numerous fields of research. The Cruz approach creates a culture of fear and uncertainty in the research community, beyond just the specific grants targeted by Senator Cruz's report. In attempting to target 'DEI' and 'neo-Marxist' research, Senator Cruz is putting at risk research efforts with bipartisan interest from Congress, the Trump and Biden administrations, and even stated support from Senator Cruz himself. Moreover, these actions jeopardize the economic and national security of the United States.

To understand the actual nature of the research and STEM education-related activities targeted by Senator Cruz, it is important to know that the core research and broader impacts activities are both described in the 'award description' that Cruz Report authors searched in their analysis. Many awards were flagged only for their proposed broader impacts activities (e.g. outreach to diverse populations) while the core research project was a technical research topic, for example in computer science or engineering. If Senator Cruz wants to debate the merits or specifics of the broader impacts criterion he voted for, let Congress have that debate. Instead, it appears he'd rather just throw the proverbial baby out with the bathwater and trash the science being carried out because the researchers dared to mention they might partner with a local K-12 school that has a high minority population. America is no longer dominating the global race to develop science and technology, as stated so clearly by former Republican Congresswoman and Secretary of the Airforce, Dr. Heather Wilson, in her recent testimony before the Science Committee.[71] The People's Republic of China is now leading in 37 of 44 critical technologies, and efforts like the Cruz Report will further compromise the economic and national security of the United States by eroding American science and narrowing the talent pipeline that Congress and federal science agencies have worked so hard to widen.[72] Below, we list several critical research areas along with the corresponding funding totals of the grants in each respective topic that have been targeted in the Cruz Report.

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[71] The State of U.S. Science and Technology: Ensuring U.S. Global Leadership - *YouTube*. (n.d.). https://www.youtube.com/live/8HN1MjPHTfA?si=TgbVbbuK9xBL6XYD&t=1493

[72] Needham, K. (2023, March 2). China leads US in global competition for key emerging technology, study says. *Reuters*. https://www.reuters.com/technology/china-leads-us-global-competition-key-emerging-technology-study-says-2023-03-02/
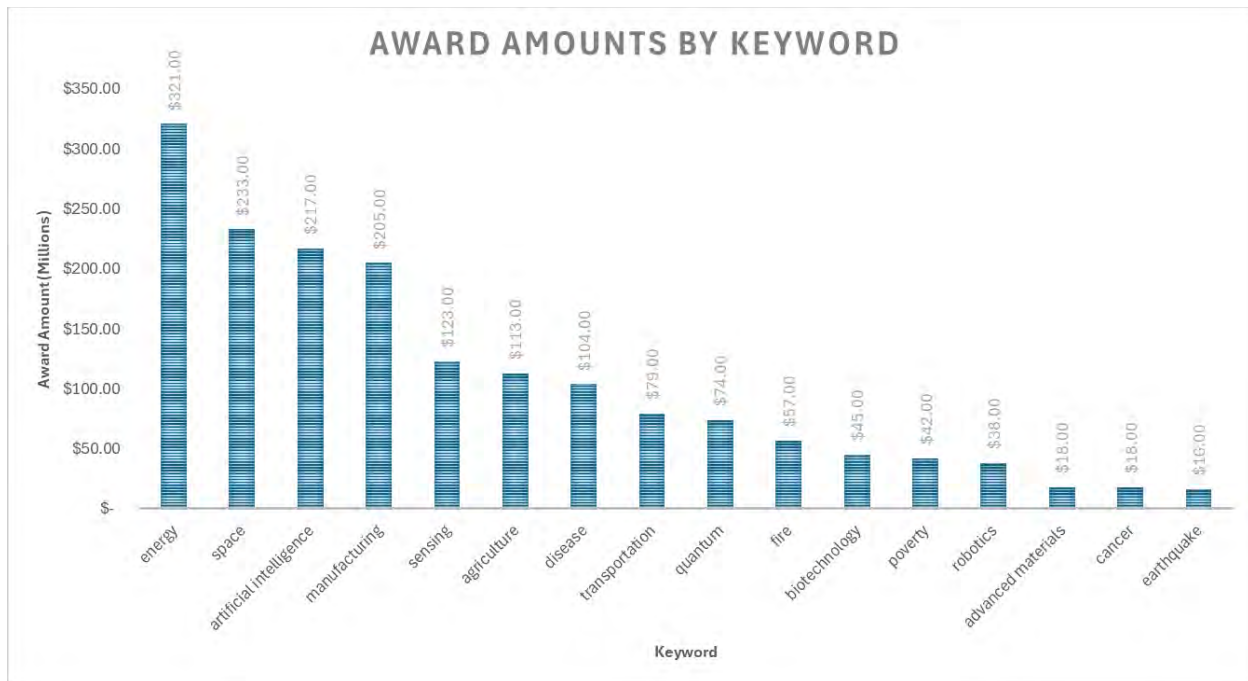
As can be seen above, many of the projects targeted by Cruz's keyword list contain keywords relevant to critical technology and research areas such as cancer research, quantum sciences, and artificial intelligence.

For example, $18 million in awards flagged in the Cruz Report also contained the word 'cancer,' such as a "Research Training Groups in the Mathematical Sciences" award to the University of Texas at Arlington, in which teams conduct research applying mathematical modeling to answer questions on topics in cancer biology, computational neurology, and vector-borne diseases. The research, guided by experimental work, would advance mathematics by developing state-of-the-art stochastic modeling and optimal control frameworks for the dynamics of cancer biomarkers. However, presumably due to UTA's status a Hispanic-Serving Institution, this grant is one of the thousands written off as "neo-Marxist warfare propaganda." This is contradictory to the supposed goals of Senator Cruz, who has stated that "we should want researchers spending time trying to figure out how to cure cancer, how to cure deadly diseases, not bean counting to satisfy the political agenda of Washington Democrats."[73]

His report also targets programs seeking to develop our workforce in key technology areas. For example, $74 million in awards flagged in the Cruz Report also contained the word 'quantum' at a time when both Democratic and Republican Senators have referred to quantum research and development as "critical to our economic and national security."[74] One targeted initiative, Quantum Noir, aims to "expose and network young researchers in an important emerging technology space, a space important to the nation's technology future." The research is led by William L. Wilson, director of the Center for Nanoscale Systems at Harvard, who has stated that

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[73] Carr, T., & Manto, M. (2025, February 22). *In the War Against DEI in Science, Researchers See Collateral Damage*. NOTUS. https://www.notus.org/healthcare/dei-science-research

[74] *Cantwell, Young, Durbin, Daines introduce National Quantum Initiative Reauthorization Act*. (2024, December 3). U.S. Senate Committee on Commerce, Science, & Transportation. https://www.commerce.senate.gov/2024/12/cantwell-young-durbin-daines-introduce-national-quantum-initiative-reauthorization-act

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"Quantum Noir is not a DEI initiative, it is a workforce development initiative."[75] Targeting this program directly contradicts Senator Cruz's recent comments on the importance of fostering innovative technologies like artificial intelligence and quantum computing technology to create new, high-paying jobs across the country.[76]

Both the Biden and Trump administrations have issued executive orders on the importance of artificial intelligence, with President Trump stating as far back as 2019 that "continued American leadership in Artificial Intelligence is of paramount importance to maintaining the economic and national security of the United States."[77] However, $217 million in awards flagged in the Cruz Report also contained the term 'artificial intelligence.' In fact, the largest grant on Cruz's list was $29 million for the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign. "I don't know exactly why we were flagged, because we're an AI resource for the nation," said NCSA Director William Gropp.[78]

Being made a target by Senator Cruz has real consequences, as the Senator no doubt understands and perhaps intends. As noted by one researcher, "just being on the list is scary."[79] Anecdotally, some of these researchers are receiving death threats and other trolling online. They begin to second-guess every word they speak or write, which surely cannot be good for open scientific inquiry. Such fear and uncertainty can lead to scientists leaving research careers or supporting fewer graduate students due to funding uncertainty, contributing to the erosion of U.S. scientific leadership. Despite the misinformation in some corners that academic scientists are living high on the hog, most academic scientists make a modest living, with many living paycheck-to-paycheck. Increased uncertainty about their work also serves as a distraction from focusing on their research and potential breakthroughs that support the American scientific enterprise. The collective outcomes of Senator Cruz's campaign against scientists amount to a mountain of missed opportunities: missed opportunities in scientific discovery, missed opportunities to bolster our workforce in critical science and technology areas, and missed opportunities to improve U.S. competitiveness as China races for – and in some fields, achieves – dominance.

The CEO of the American Association for the Advancement of Science recently captured the impacts of this uncertainty in testimony to Congress, stating that "Uncertainty, whether in the form of spending freezes, the threat of government shutdowns, or potentially canceling funding that has already been approved, reverberates through the scientific community. Institutions must of course change — disruption is not a bad thing and should happen every so often — but we must be careful not to dismantle the very strengths that will keep us competitive long into the

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[75] *Senate Committee targets $3 million in Harvard NSF research grants for 'Far-Left Ideology' | News | The Harvard Crimson*. (n.d.). https://www.thecrimson.com/article/2025/2/19/senate-report-grants/

[76] *Sen. Cruz: The Story of the 21st Century Will Be Written by Whichever Nation Can Innovate the Fastest*. (2025, March 6). U.S. Senate Committee on Commerce, Science, & Transportation. https://www.commerce.senate.gov/2025/2/sen-cruz-the-story-of-the-21st-century-will-be-written-by-whichever-nation-can-innovate-the-fastest

[77] *Accelerating America's leadership in artificial intelligence – The White House* (2019). https://trumpwhitehouse.archives.gov/articles/accelerating-americas-leadership-in-artificial-intelligence/

[78] Carr, T., & Manto, M. (2025, February 22). *In the War Against DEI in Science, Researchers See Collateral Damage*. NOTUS. https://www.notus.org/healthcare/dei-science-research

[79] Magazine, U., & Magazine, U. (2025, February 22). In war against DEI in science, researchers see collateral damage. *Ars Technica*. https://arstechnica.com/science/2025/02/in-war-against-dei-in-science-researchers-see-collateral-damage/

future. It is not the message we want to be sending to those shaping our future, nor to our adversaries."[80]

The Science, Space, and Technology Committee Minority is hardly alone in calling out the dangers of the Cruz Report. Journalists and outside parties have performed in-depth reviews of their own, including direct interviews with impacted parties. Examples are provided in the list below.

- U.S. Senate identifies $15 million worth of NSF grants to NU 'promoting DEI' | The Daily Northwestern
- Sen. Ted Cruz calls out 'woke DEI' science including bird evolution and stormwater drains | Lone Star Live
- Senate Committee Targets $3 Million in Harvard NSF Research Grants for 'Far-Left Ideology' | The Harvard Crimson
- Senate investigation led by Ted Cruz '92 targets $2.4 million in Princeton research grants | The Princetonian
- In war against DEI in science, researchers see collateral damage | Ars Technica
- Ted Cruz names IU Trustees in list of 'woke' DEI grants from National Science Foundation | Indiana Daily Student
- The NSF's Higher Ed Research "Hit List" | Inside Higher Ed
- Ted Cruz targets 'woke DEI' science grants at Georgia universities | The Atlanta Journal-Constitution
- See how much science research funding flagged for DEI at CT schools | CT Insider
- UTEP leaders silent as Ted Cruz accuses researchers of using 'woke DEI grants' | El Paso Matters
- Federal list of forbidden words may jeopardize research at UCSD | KPBS
- Sen. Ted Cruz's list of 'woke' science includes self-driving cars and solar eclipses | KMUW
- A grant to study Hebrew is 'woke DEI,' Ted Cruz says | Israel National News
- U.S. Senate report flags $4.7 million of Yale's NSF funding for "promoting DEI" | Yale Daily News
- Sen. Cruz-Led Investigation Labels $18.7M in Cornell Research Grants as Promoting DEI, 'Neo-Marxist Class Warfare Propaganda' | The Cornell Daily Sun
- Mint Plants. Lifesaving Devices. This Is the Research Ted Cruz Calls "Woke." | ProPublica

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[80] The State of U.S. Science and Technology: Ensuring U.S. Global Leadership - *YouTube*. (n.d.). https://www.youtube.com/live/8HN1MjPHTfA?t=5694s

Conclusion

Under the politically fashionable auspices of attacking supposed waste, institutions of higher education, and disadvantaged populations, Senator Cruz issued a sloppy and unscientific report that is nonetheless having serious consequences for the scientific enterprise. Diversity, equity, and inclusion programs are not above scrutiny and debate, but this report offers no concrete criticisms or productive proposals to consider to better accomplish the goals of increasing access to STEM opportunities and enhancing our competitiveness by tapping into talent in every corner of our country. Instead, it issues blunt attacks across the National Science Foundation, endangering research activities that practically all Americans would recognize as fair, merit-based, and important to our nation. The proposals attacked in the report went through NSF's gold-standard merit review process. Unfortunately, NSF itself is further undermining its merit review by undertaking their keyword-based review of existing grants. While the outcomes of their own internal keyword search and analysis have yet to be publicized, we are deeply concerned that NSF chose to act on the Cruz Report rather than stand up for their merit review process, for their own workforce, and for the scientific community at large. The actions of Senator Cruz have caused long-term, perhaps irreparable damage to the scientific community's trust of NSF and its ability to perform its mission. Congressional reports can have outsized impacts on agencies; the Committees devoted to science and technology have a responsibility to conduct ethical and careful analyses to guide sound recommendations for U.S. science and technology policy. We hope that future reports issued by the Senate Committee on Commerce, Science, and Transportation reflect a more responsible exercise of our duty as public servants to the American public.

Appendix I – Cruz Report Methodology and Keyword List

The text below is taken directly from Senator Cruz's Report from Appendix A and B.

The Committee accessed USASpending.gov to capture all reported NSF grants active between January 20, 2021, and April 4, 2024. Data was downloaded and exported to a CSV file, then filtered by "award_base_action_date" to identify all NSF grants awarded between those dates. This initially identified 32,198 total NSF grants awarded during the Biden-Harris administration.

The Committee then ran the project descriptions through an N-gram analysis to identify the most-often-used terms and phrases in NSF Project Descriptions and parsed those terms for DEI keywords and phrases. The keyword and phrase list was also supplemented by DEI terms mentioned in DEI dictionaries maintained by the National Association of Counties and the University of Washington's College of the Environment. The Committee refined the list of terms to include misspellings or different formatting, using over 800,000 variations and combinations of the keywords and phrases to better identify problematic grants. The full list is available [below].

Next, the Committee built a keyword tagging identifier Python program tool to analyze each of the 32,198 NSF grant descriptions. The program tagged grants with the specific keywords and phrases that appeared in the NSF Project Descriptions, which the Committee used to build a database of all grants. Any grants that did not contain keywords or phrases were removed, bringing the total number of grants to 29,099. After review, the Committee also removed any grants that the Python program tagged with a single keyword or phrase to eliminate projects that may use a keyword or phrase in a scientific way, such as the study of the diversity of biomes. This reduced the database to 25,981 grants.

The Committee then separated the keywords into the five categories used to conduct the analysis within this report: Status, Social Justice, Gender, Race, and Environmental Justice. There were 145 keywords and phrases that populated the Status category, 172 keywords and phrases used to categorize the Social Justice category, 156 keywords and phrases for the Gender category, 188 keywords and phrases in the Race category, and 38 keywords and phrases in the Environmental Justice category.

The Committee used a categorization "qualifier" tagging formula in Excel to sort the data and confirm that phrases identified by the Python tool described DEI grants. For example, while the Python tool could identify that a Program Description included the words "bias" and "cultural," the Excel qualifier only identified grants that mentioned "cultural bias" in the Program Description. The Committee then removed grants that the qualifier formula did not identify as DEI programs, bringing the total number of grants to 12,295. Grants that only included a single keyword or phrase were also removed, reducing the database to 6,580 grants.

A review of the grants still revealed some with scientific purpose, such as research that investigated the diversity of black holes. The Committee searched for grants that used words that have multiple meanings, such as "barrier" and "black," and removed those without true scientific purpose. This step resulted in the Committee's final database of 3,514 grants. The Committee reviewed 1,461 of the grants individually, including all programs that were funded over $1 million, and removed another 31 grants, leaving the final 3,483 grants profiled in this report.

The individual review represented $1,266,598,691 (62%) of the final funding described in this report. The Committee will provide the final database to any interested party upon request.

Keyword List

Status Activism; Activist; Activists; Advocacy; Advocate; Advocates; Affirmative Action; Bias Toward; Bias Towards; Biased; Biased Toward; Biased Towards; Biases; Biases Toward; Biases Towards; De Colonization; De Colonize; De Colonized; De Colonizing; De Segregate; De Segregated; De Segregates; De Segregation; Decolonization; Decolonize; Decolonized; Decolonizing; Desegregate; Desegregated; Desegregates; Desegregation; Discriminate; Discriminated; Discrimination; Discriminatory; Divisiveness; Excluded; Exclusion; Exclusive; Feel Seen And Heard; Hate Speech; Historically; Implicit Bias; Implicit Biases; Injustice; Injustices; Institutional; Institutionalize; Institutionalized; Institutionally; Intergenerational Trauma; Intersectional; Intersectionality; Marginalization; Marginalize; Marginalized; Micro Aggression; Micro Aggressions; Micro Aggressive; Micro Aggressiveness; Microaggression; Microaggressions; Microaggressive; Microaggressiveness; Minorities; Minority; Oppressed; Oppressive; Oppressiveness; Oppression; Polarization; Polarize; Politicization; Politicize; Political; Prejudice; Prejudices; Privilege; Privileged; Privileges; Reparation; Reparations; Segregated; Segregation; Socio Economic; Socioeconomic; Status; Statuses; Stereotype; Stereotypes; Stereotypical; Stereotyping; System Of Oppression; Systematic Oppression; Systematically Oppressed; Systemic; Systemic Oppression; Systemical; Systemically; Systemically Oppressed; Systems Of Oppression; Systems Of Power; Trauma; Traumatic; Under Appreciated; Under Appreciation; Under Privilege; Under Privileged; Under Representation; Under Represented; Under Served; Under Serving; Under Valued; Under Valuing; Underappreciated; Underappreciation; Underprivilege; Underprivileged; Underrepresentation; Underrepresented; Underserved; Underserving; Undervalued; Undervaluing; Unjust; Victim; Victimhood; Victimized; Victims; Voices Are Acknowledged; Voices Heard; Voices Matter; Unequal Opportunities; Unequal Opportunity; Safe Space; Safe Spaces; Sense Of Belonging; Sense Of Belongingness; Welcoming Environment; Barrier; Barriers; Disabilities; Disability; Ally; Allyship.

Social Justice Advance Diversity; Advance Inclusivity; Advance The Diversity; Advancing Diversity; Advancing Inclusive; Alliance For Diversity; Background Inclusivity; Bi Cultural; Bicultural; Black Cultural; Black Culture; Black Cultures; Broaden Diversity; Broaden The Diversity; Commitment To Diversity; Community Diversity; Community Equity; Community Inclusivity; Cultural Activism; Cultural Activist; Cultural Activists; Cultural Advocacy; Cultural Advocate; Cultural And Ethnic; Cultural And Racial; Cultural Appropriation; Cultural Appropriations; Cultural Bias; Cultural Competency; Cultural Connections; Cultural Differences; Cultural Heritage; Cultural Humility; Cultural Inequalities; Cultural Inequality; Cultural Inequities; Cultural Inequity; Cultural Injustice; Cultural Injustices; Cultural Justice; Cultural Relevance; Cultural Segregation; Culturally Attuned; Culturally Biased; Culturally Responsive; Culturally Sensitive; Culturally Sustainable; Culturally Sustaining; Culture And Ethnicity; Culture And Race; Cultures And Ethnicities; Cultures And Races; DEI; DEIJ; Diverse Background; Diverse Backgrounds; Diverse Communities; Diverse Community; Diverse Group; Diverse Groups; Diverse Individual; Diverse Individuals; Diverse Status; Diverse Statuses; Diverse Voices; Diversified; Diversify; Diversifying; Diversity And Equity; Diversity And Inclusion; Diversity And Inclusivity; Diversity Awareness; Diversity Equity; Emphasis On Diversity; Emphasize Diversity; Emphasizing Diversity; Encourage Diversity; Encouraging Diversity; Enhance Diversity; Enhance The Diversity; Enhancing Diversity; Equal

Opportunities; Equal Opportunity; Equalities; Equality; Equitable; Equitable And Inclusive; Equities; Equity; Ethnic And Cultural; Ethnic Cultural; Ethnic Culture; Ethnic Cultures; Ethnic Diversity; Ethnic Equity; Ethnicities And Cultures; Ethnicity And Culture; Foster Diversity; Fostering Diversity; Fostering Inclusive; Fostering Inclusivity; Fostering The Diversity; Group Equity; Group Inclusivity; Hispanic Cultural; Hispanic Culture; Hispanic Cultures; Inclusion; Inclusive; Inclusive Language; Inclusiveness; Inclusivity; Inclusivity And Diversity; Increase Diversity; Increase The Diversity; Increases Diversity; Increases The Diversity; Increasing Diversity; Increasing The Diversity; Indigenous Cultural; Indigenous Culture; Indigenous Cultures; Inequalities; Inequality; Inequitable; Inequities; Inequity; Inter Cultural; Inter Culturally; Intercultural; Interculturally; Lack Of Diversity; Latinx Cultural; Latinx Culture; Latinx Cultures; Multi Cultural; Multi Culturally; Multicultural; Multiculturally; Promote Diversity; Promoting Diversity; Segregated Cultures; Social Activism; Social Activist; Social Activists; Social Advocacy; Social Advocate; Social Bias; Social Biases; Social Inequalities; Social Inequality; Social Inequities; Social Inequity; Social Injustice; Social Injustices; Social Justice; Social Justice Activism; Social Justice Advocacy; Social Justice Advocate; Socially Biased; Socio Cultural; Socio Culturally; Sociocultural; Socioculturally; Structural Inequality; Structural Inequity; Support Diversity; Supporting Diversity; Trans Cultural; Transcultural; Socially Relevant; Culturally Relevant.

Gender Bigot; Bigotry; Black Female; Black Females; Black Male; Black Males; Black Men; Black Women; Cisgender; Cisnormative; Cisnormativity; Colored Female; Colored Females; Colored Male; Colored Males; Colored Men; Colored Women; Female; Female Voices; Females; Femininity; Feminism; Feminist; Feministic; Fluid Identity; Gender; Gender Acceptance; Gender Affirmation; Gender Affirming; Gender And Sexual; Gender Appreciation; Gender Based; Gender Binary; Gender Discrimination; Gender Disparities; Gender Disparity; Gender Diversity; Gender Dysmorphia; Gender Dysphoria; Gender Fluid; Gender Fluidity; Gender Identity; Gender Ideology; Gender Inclusive; Gender Inclusivity; Gender Marginalized; Gender Minorities; Gender Minority; Gender Neural; Gender Non Binary; Gender Non Conforming; Gender Nonbinary; Gender Nonconforming; Gender Oppression; Gender Preference; Gender Preferences; Gender Spectrum; Gender Stereotypes; Gender Transition; Gender Transitioning; Gender Typical; Genders; Heterosexual; Hispanic Female; Hispanic Females; Hispanic Male; Hispanic Males; Hispanic Men; Hispanic Women; Historically Male; Indigenous Female; Indigenous Females; Indigenous Male; Indigenous Males; Indigenous Men; Indigenous Women; Intersectional Feminism; Latina Female; Latina Females; Latina Male; Latina Males; Latina Men; Latina Women; Latinx Female; Latinx Females; Latinx Male; Latinx Males; Latinx Men; Latinx Women; LGBT; LGBTQ; LGBTQ+; LGBTQIA; Male Dominant; Male Dominated; Masculine; Masculinity; Mis Gender; Misgender; Misogynistic; Misogyny; Non Binary; Non Binary Gender; Non Conforming Gender; Nonbinary; Nonbinary Gender; Nonconforming Gender; Oppressed Gender; Oppressed Genders; Oppressed Sexualities; Pansexual; Predominately Male; Preferred Gender; Preferred Identity; Preferred Sex; Primarily Male; Pronoun; Pronouns; Queer Theory; Self Identify; Sex Change; Sex Preference; Sex Transition; Sexism; Sexist; Sexual Discrimination; Sexual Disparities; Sexual Disparity; Sexual Identity; Sexual Minorities; Sexual Minority; Sexual Preference; Sexual Preferences; Sexualities; Sexuality; Straight White; Toxic Masculinity; Transgender; Transgenderism; Transitioning Gender; Transitioning Sex; Transjustice; Transphobia; Transphobic; Underrepresented Gender; Voices Of Women; White Female; White Females; White Male; White Males; White Men;

White Women; Women; Women And Gender; Women And Underrepresented; Women Underrepresented.

Race Anti Black; Anti Black Racism; Anti Racism; Anti Racist; Anti White; Antiblack; Antiblack Racism; Antiracism; Antiracist; Antiwhite; BIPOC; BIPOCX; Black And Latinx; Black Communities; Black Community; Black Indigenous And Latinx; Black Indigenous And Other; Black Indigenous Latinx; Black Indigenous Other; Black Individual; Black Individuals; Black Intellectualism; Black Lives Matter; Black Minorities; Black Minority; Black People; Black Person; Black Thought; Black Voices; Blackness; Colored Communities; Colored Community; Colored Individual; Colored Individuals; Colored Minorities; Colored Minority; Colored People; Colored Person; Colored Voices; Critical Race Theory; Ethnic And Racial; Ethnic Bias; Ethnic Communities; Ethnic Community; Ethnic Identities; Ethnic Identity; Ethnic Individual; Ethnic Individuals; Ethnic Minorities; Ethnic Minority; Ethnic People; Ethnic Person; Ethnic Racism; Ethnic Segregation; Ethnic Voices; Ethnical Racism; Ethnicities And Races; Ethnicity; Ethnicity And Race; Hispanic Communities; Hispanic Community; Hispanic Individual; Hispanic Individuals; Hispanic Minorities; Hispanic Minority; Hispanic People; Hispanic Person; Hispanic Voices; Historical Racism; Historically Racist; Historically White; Indigenous Communities; Indigenous Community; Indigenous Individual; Indigenous Individuals; Indigenous Minorities; Indigenous Minority; Indigenous People; Indigenous Person; Indigenous Voices; Institutional Racism; Institutionalized Racism; Institutionally Racist; Inter Racial; Inter Racially; Interracial; Interracially; Latina Communities; Latina Community; Latina Individual; Latina Individuals; Latina Minorities; Latina Minority; Latina People; Latina Person; Latina Voices; Latinx Communities; Latinx Community; Latinx Individual; Latinx Individuals; Latinx Minorities; Latinx Minority; Latinx People; Latinx Person; Latinx Voices; Multi Ethnic; Multi Ethnically; Multiethnic; Multiethnically; Non Black; Non White; Nonblack; Nonwhite; People Of Color; POC; POCX; Predominately White; Primarily White; Privileged White; Pro Black; Pro White; Problack; Prowhite; Race And Culture; Race And Ethnicity; Race Based; Racebased; Races And Cultures; Races And Ethnicities; Racial; Racial And Cultural; Racial And Ethnic; Racial Bias; Racial Biases; Racial Disparities; Racial Disparity; Racial Diversity; Racial Identity; Racial Inequalities; Racial Inequality; Racial Inequities; Racial Inequity; Racial Injustice; Racial Injustices; Racial Justice; Racial Minorities; Racial Minority; Racial Oppression; Racial Prejudice; Racial Prejudices; Racial Segregation; Racial Socialization; Racial Solidarity; Racial Stereotypes; Racial Violence; Racially; Racially And Culturally; Racially Bias; Racially Biased; Racially Oppressed; Racism; Racist; Segregated Ethnicities; Segregated Ethnicity; Segregated Race; Segregated Races; Structural Racism; Structurally Racist; Systemic Racism; Systemically Racist; Tokenistic; Tokensim; Trans Ethnic; Transethnic; White Colonialism; White Colonization; White Colonizer; White Colonizers; White Fragility; White Historically; White Nationalism; White Nationalist; White People; White Person; White Privilege; White Serving; White Supremacy; Whiteness.

Environmental Justice Climate Action; Climate Conscious; Climate Consciousness; Climate Equality; Climate Equity; Climate Justice; Climate Research; Eco Cultural; Ecocultural; Environment Conscious; Environment Consciousness; Environmental Conscious; Environmental Consciousness; Environmental Equality; Environmental Equity; Environmental Governance; Environmental Justice; Environmental Social; Environmentalgovernance; Environmentally Conscious; Environmentalsocial; ESG; ESG Effort; ESG Efforts; ESG Initiative; ESG

Initiatives; Green New Deal; Net Zero; Netzero; Social Environmental; Socialenvironmental; Climate Injustice; Climate Justices; Climate Injustices; Climate Change; Green Infrastructure; Green Society; Clean Energy

Appendix II – Research Funding to be Removed by the Cruz Report, By Topic

- $321M in awards with keywords including "energy".
- $233M in awards with keywords including "space".
- $217M in awards with keywords including "artificial intelligence".
- $205M in awards with keywords including "manufacturing".
- $79M in awards with keywords including "transportation".
- $123M in awards with keywords including "sensing".
- $113M in awards with keywords including "agriculture".
- $104M in awards with keywords including "disease".
- $74M in awards with keywords including "quantum".
- $45M in awards with keywords including "biotechnology".
- $38M in awards with keywords including "robotics".
- $18M in awards with keywords including "advanced materials".
- $18M in awards with keywords including "cancer".
- $42M in awards with keywords including "poverty".
- $57M in awards with keywords including "fire".
- $16M in awards with keywords including "earthquake".

Appendix III - DEI Terminology

For the purpose of this report, Science Committee Minority staff used the phrases 'DEI' and 'neo-Marxist' in ways that aligned with the use of those phrases in the Cruz Report. However, there are no consensus definitions for 'diversity, equity, and inclusion,' or 'woke' or 'neo-Marxist' for that matter. The Cruz Report did not provide a definition of what Senator Cruz considered to be part of diversity, equity, or inclusion (DEI) or neo-Marxist and instead opted to define such activities as those that contained at least one of approximately 200 keywords from a curated list that included technical phrases such as "female" and "climate research" (*for full list, see Appendix I*).

While we acknowledge that interpretation of DEI (and DEIA) may be context-dependent, we found the definitions used by the previous administration to be helpful: [81]

- The term "diversity" means the practice of including the many communities, identities, races, ethnicities, backgrounds, abilities, cultures, and beliefs of the American people, including underserved communities.
- The term "equity" means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment.
- The term "inclusion" means the recognition, appreciation, and use of the talents and skills of employees of all backgrounds.
- The term "accessibility" means the design, construction, development, and maintenance of facilities, information and communication technology, programs, and services so that all people, including people with disabilities, can fully and independently use them.

At no point in promoting DEIA did the Biden-Harris Administration seek to undermine merit-based hiring. To the contrary, they instructed agencies that "all persons should receive equal treatment under the law" and that "[a]ll employees and applicants for employment should receive fair and equitable treatment in all aspects of personnel management" in accordance with statute.[82] While colloquial definitions often limit DEI to racial demographics, gender identity, and sexual orientations, the Biden-Harris Administration included individuals who belong to communities that face discrimination based on their religion or disability; first-generation professionals or first-generation college students; individuals who belong to communities that may face employment barriers based on older age or former incarceration; persons who live in rural areas, veterans and military spouses, and persons otherwise adversely affected by persistent poverty, discrimination, or inequality.[83] All of these groups are incorporated in federal agency DEI activities – by attacking all of NSF's DEI programs, Senator Cruz attacked efforts involving veterans, rural areas, and people living in poverty.

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[81] (2021, June 25). *Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce*. The White House. https://bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2021/06/25/executive-order-on-diversity-equity-inclusion-and-accessibility-in-the-federal-workforce/
[82] *Ibid.*
[83] *Ibid.*