

CHIPS and Science Act (P.L. 117-167)
Enacted August 2022

Sections of interest:

Division B – Research and Innovation

Title III – National Science Foundation for the Future

Subtitle A – Preliminary Matter

Subtitle B – STEM Education

Subtitle C – Broadening Participation

Subtitle D – NSF Research Security

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Title VI – Miscellaneous Science and Technology Provisions

Subtitle A – Supporting Early-Career Researchers

Subtitle B – National Science and Technology Strategy

Subtitle D – Research Security

TITLE III—NATIONAL SCIENCE FOUNDATION FOR THE FUTURE (p. 373)

General	<ul style="list-style-type: none"> Serves as reauthorization legislation for NSF for FY 2023-FY 2027. Codifies NSF’s Technology, Innovation, and Partnerships Directorate. Contains provisions related to STEM education, broadening participation, research security, and specific research areas.
SUBTITLE A – PRELIMINARY MATTER (p. 373)	
Authorization of Appropriations	<p>Sec. 10303 (p. 375) – See attached table for details.</p> <ul style="list-style-type: none"> Authorizes appropriations for FY 2023-2027. Authorizes a more than doubling of the NSF budget over 5 years (FY 2022 enacted = \$8.8 billion; FY 2027 authorization = \$18.9 billion). The TIP Directorate’s share of the R&RA budget is authorized to grow from 16.6% in FY 2023 to 27.9% in FY 2027.
SUBTITLE B – STEM EDUCATION (p. 385)	
PreK-12 STEM	<p>Sec. 10311 (p.385)</p> <ul style="list-style-type: none"> NASEM Study – Directs the National Academies to review research literature and identify research gaps on the interconnected factors that foster and hinder implementation of PreK-12 STEM innovations, present compendium of promising practices, models, programs, and technologies. Pre-K-12 Informal STEM Opportunity – Supports research to advance the engagement of students in Pre-K-12 in STEM through before-school, after-school, out-of-school, or summer activities. National STEM Teacher Corps Pilot – Allows for the establishment of a 10-year pilot program to elevate the STEM profession by recognizing and rewarding outstanding STEM teachers. Corps members serve 4-year terms, receive \$10,000 stipend, and work to develop and improve innovative teaching practices. Authorizes \$60 million a year for 10 years.
Undergraduate STEM	Sec. 10312 (p. 402)

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	<ul style="list-style-type: none"> • Supports research on STEM education and workforce needs, including greater collaboration with industry to enhance education and improve alignment with workforce needs. • Innovations in STEM Education at Community Colleges – Support research on the nature of learning and teaching at community colleges and to improve outcomes for students who enter the workforce upon completion of their STEM degree or credential or transfer to a 4-year institution.
Graduate STEM	<p>Sec. 10313 (p. 419)</p> <ul style="list-style-type: none"> • Adds “graduate students” to existing NSF mentoring plan requirements for grants. • Award grants to facilitate “career exploration of academic and non-academic career options and for providing opportunity-broadening experiences for graduate students and postdoctoral scholars that can be considered, adopted, or adapted by other institutions...” • Require annual project reports for awards supporting graduate students and postdocs include certification by the PI that each graduate student and postdoc has an annually updated individual development plan to map education goals, career exploration, and professional development. • Support research grants on the graduate education system, including effects of traineeships, fellowships, and other factors. • Calls for an independent evaluation of NSF’s role in supporting graduate student education and training.
<i>Graduate Research Fellowship Program</i>	<ul style="list-style-type: none"> • Increases the number of fellowships to at least 3,000 annually over the next 5 years. • Increases the cost-of-education allowance to institutions from \$12,000 to at least \$16,000. • Directs NSF to ensure outreach is made to applicants from fields of study that are in areas of critical national need, from all regions of the country, and from historically underrepresented populations.
<i>AI Scholarship-for-Service</i>	<ul style="list-style-type: none"> • Authorizes NSF to establish a program to recruit and train AI professionals to lead and support the application of AI to federal, state, local and tribal governments. Would provide scholarship recipients with summer internship opportunities in the federal workforce and path to federal employment following degree.
Workforce Data	<p>Sec. 10314 (p.439)</p> <ul style="list-style-type: none"> • Calls for a portfolio analysis of NSF’s skilled technical workforce investments. • The analysis will assess the feasibility and benefits of adding new questions or topics to NCSES surveys on the skilled technical workforce, working conditions and work-life balance, harassment and discrimination, sexual orientation and general identity, and immigration and emigration.
SUBTITLE C – BROADENING PARTICIPATION (p. 462)	
NSF INCLUDES Initiative	<p>Sec. 10323 (p.465)</p> <ul style="list-style-type: none"> • Codifies the NSF INCLUDES Initiative and renames it the Eddie Bernice Johnson INCLUDES Initiative.
Expanding Geographic and Institutional Diversity in Research	<p>Sec. 10325 (p. 466)</p> <ul style="list-style-type: none"> • EPSCoR Program – Modifies EPSCoR program to increase the capacity of rural communities to provide quality STEM education and workforce development. Calls on NSF to dedicate (“to the maximum extent practicable” and consistent with the merit review process) 15.5% of the NSF appropriation in FY 2023 to funding EPSCoR institutions; it would grow to 20% by FY 2029. Set-aside targets are also identified for NSF scholarship and fellowship programs. • Partnership with Emerging Research Institutions – Allows for the establishment of a 5-year pilot program to enhance partnerships between “emerging

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	research institutions” and institutions classified as “very high research activity.”
Chief Diversity Officer	Sec. 10327 (p.480) <ul style="list-style-type: none"> Codifies the position of Chief Diversity Officer at NSF responsible for providing advice on policy, oversight, guidance, and coordination on matters related to diversity and inclusion.
Research and Dissemination to Increase the Participation of Women and Underrepresented Minorities in STEM Fields	Sec. 10328 (p. 482) <ul style="list-style-type: none"> Authorizes grants to study and disseminate information related to the above activities under this title, including analyzing record-level data collected on grant applicants and studying best practices for work-life accommodations, among others.
Activities to Expand STEM Opportunities	Sec. 10329 (p. 484) <ul style="list-style-type: none"> STEM Faculty – Award grants to universities for the development and assessment of innovative reform efforts to increase the recruitment, retention, and advancement of underrepresented minority groups in STEM careers. Grants can be used for institutional assessment activities (data analysis and policy review), implementation of institution-wide improvements in workload distribution, development of training courses, workshops, and other professional development activities. Undergraduate STEM Education – Award grants to universities to implement or expand research-based reforms in undergraduate STEM education to recruit and retain students from underrepresented groups.
SUBTITLE D – NSF RESEARCH SECURITY (p. 497)	
Office of Research Security and Policy	Sec. 10331 (p. 497) <ul style="list-style-type: none"> Directs NSF to maintain a research security and policy office in the Office of the NSF Director with at least 4 FTEs. The Office shall: coordinate research security policy issues across agency; conduct risk assessments of award applications and disclosures to NSF; request universities to submit documentation related to foreign appointments, employment, and foreign talent programs; and substitute or remove an individual from an award, reduce award amount, or terminate award if the NSF Director determines activities interfere with the award activities or create duplication; and ensure NSF compliance with NSPM-33 or successor policies on research protections.
Chief of Research Security	Sec. 10332 (p. 500) <ul style="list-style-type: none"> The Chief of Research Security will be appointed by NSF Director.
Online Resource	Sec. 10334 (p. 501) <ul style="list-style-type: none"> Develop an online resource on the NSF website that includes: research security policies; unclassified guidance on potential security risks; and examples of beneficial international collaborations versus examples of potential security threats.
Research Awards	Sec. 10335 (p. 502) <ul style="list-style-type: none"> Allows NSF Director to make competitive awards to support research on the conduct of research, including on research misconduct and research integrity.
Responsible Conduct in Research Training	Sec. 10337 (p. 503) <ul style="list-style-type: none"> Amend existing responsible conduct of research training to include “faculty and other senior personnel” in addition to postdoctoral researchers.

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Research Security and Integrity Information Sharing Analysis Organization	<p>Sec. 10338 (p. 504)</p> <ul style="list-style-type: none"> • Directs NSF to partner with an independent organization to establish a Research Security and Integrity Information Sharing Analysis Organization (RSI-ISAO), a clearinghouse for information on research security and integrity. • The RSI-ISAO will be comprised of institutional members and be governed by a board of directors.
Controlled Information and Background Screening	<p>Sec. 10339 (p. 507)</p> <ul style="list-style-type: none"> • NSF, in consultation with the Director of National Intelligence, shall develop a plan on research that involves “controlled unclassified information” (CUI) and classified information, and develop a plan on granting access to such information to research staff.
Institutions Hosting or Supporting Confucius Institutes	<p>Sec. 10339A (p. 508)</p> <ul style="list-style-type: none"> • Prohibits NSF funding from being given to an institution of higher education that maintains a contract with a Confucius Institute. • NSF may issue a waiver if an institution’s contract with a Confucius Institute includes robust protections on academic freedoms and maintains independence of its Chinese cultural programs.
Foreign Financial Support	<p>Sec. 10339B (p. 510)</p> <ul style="list-style-type: none"> • NSF shall request from research grant recipient institutions annual disclosures of any financial support of \$50,000 or more from foreign sources. • Grantee institutions of higher education are required to maintain records of foreign sources of financial support.
SUBTITLE E – FUNDAMENTAL RESEARCH (p. 512)	
Broader Impacts	<p>Sec. 10341 (p. 512)</p> <ul style="list-style-type: none"> • Directs NSF to enter into an agreement with an outside organization to assess how BI review criterion is applied across NSF and make recommendations for improving effectiveness. • Award grants to support activities to increase the efficiency, effectiveness, and availability of resources for implementing the BI review criterion (e.g., training and workshops; repositories and clearinghouses for sharing best practices and facilitating collaboration; and tools for evaluating and documenting societal impacts of research).
Research Ethics	<p>Sec. 10343 (p. 514)</p> <ul style="list-style-type: none"> • Amend award proposal instructions to include a requirement for an ethics statement as part of the proposal. • Award research grants to assess potential ethical and societal implications of NSF research and technologies.
Research Reproducibility and Replicability	<p>Sec. 10344 (p.516)</p> <ul style="list-style-type: none"> • Data Management Plans – NSF require every proposal to include a machine-readable data management plan, including a description of how the awardee will achieve and preserve public access to data, software, and code. NSF will provide resources and training for researchers and students on developing high quality data management plans and equip program officers and review panels with resources and training to assess the quality of the plans. • Open Repositories – NSF consult with heads of other sciences agencies and solicit public input in the development and dissemination of a set of criteria for trusted open repositories, accounting for discipline-specific needs. NSF may also award grants to universities or non-profits to develop, upgrade or maintain open data repositories.
Climate Change Research	<p>Sec. 10345 (p. 520)</p>

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	<ul style="list-style-type: none"> • Authorizes NSF to make awards to support research to improve understanding of the climate system and related human and environmental systems (section was significantly shorted from earlier versions to one sentence).
Social, Behavioral and Economic Sciences	<p>Sec. 10346 (p. 520) States that the NSF director shall:</p> <ul style="list-style-type: none"> • “Actively communicate opportunities and solicit proposals for social, behavioral, and economic science researchers to participate in cross-cutting and interdisciplinary programs, “including the Convergence Accelerator and agency priority activities, and the Mid-Scale Research Infrastructure program;” and • Ensure social, behavioral, and economic science researchers are represented on relevant merit review panels for such activities.
Measuring Impacts of Federally Funded R&D	<p>Sec. 10347 (p. 521)</p> <ul style="list-style-type: none"> • NSF director shall award grants for research and development of data, models, indicators, and associated analytical tools to improve understanding of the impacts of Federally funded research on society, the economy, and the workforce/job creation.
Technology and Behavioral Science Research	<p>Sec. 10357 (p. 529)</p> <ul style="list-style-type: none"> • NSF director shall award grants to “increase understanding of social media and consumer technology access and use patterns and related mental health, behavioral, and substance use disorder issues, particularly for children and adolescents; and explore the role of social media and consumer technology in rising rates of mental health and substance use disorder issues...”
Research on the Impact of Inflation	<p>Sec. 10363 (p. 543)</p> <ul style="list-style-type: none"> • NSF may make awards to support research to improve understanding of the impact of inflation, including measuring the economic impact on the American people (including cost of living and wage impacts), impacts on American international competitiveness, impact on rural and underserved communities and future generations, and the “impact on policymaking on inflation” (including the impact of further government spending).
SUBTITLE F – RESEARCH INFRASTRUCTURE (p. 548)	
National Secure Data Service	<p>Sec. 10375 (p. 557)</p> <ul style="list-style-type: none"> • NSF shall work with the Chief Statistician of the U.S. to establish a demonstration project within NCSES to develop, refine, and test models to inform the creation of government-wide data linkage and access infrastructure for statistical activities. Authorizes \$9 million each year for FY 2023-2027.
SUBTITLE G – DIRECTORATE FOR TECHNOLOGY, INNOVATION, AND PARTNERSHIPS (p. 562)	
General	<p>Sec. 10381 (p.562)</p> <ul style="list-style-type: none"> • Codifies the Technology, Innovation, and Partnerships Directorate at NSF, which was established in 2022 following first-time appropriations in the FY 2022 bill. <p>Sec. 10385 (p. 567)</p> <ul style="list-style-type: none"> • The TIP Directorate will be led by an Assistant Director, consistent with other NSF directorates. <p>Sec. 10386 (p. 568)</p> <ul style="list-style-type: none"> • Establishes an advisory committee, consistent with other NSF directorates, that will include at least 10 members with at least 3 coming from the private sector.

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	<p>Sec. 10399A (p. 623)</p> <ul style="list-style-type: none"> • Calls on the National Academies to provide an evaluation of the director after 6 years of operation.
Purposes	<p>Sec. 10382 (p. 563)</p> <ul style="list-style-type: none"> • “Support use-inspired and translational research and accelerate the development and use of federally funded research; • Strengthen U.S. competitiveness by accelerating the development of key technologies; and • Grow the domestic workforce in key technology focus areas, and expand the participation of U.S. students and researchers in areas of societal, national, and geostrategic importance, at all levels of education.”
Activities	<p>Sec. 10383 (p. 563)</p> <ul style="list-style-type: none"> • Fund transformational advances in use-inspired and translational research. • Encourage the translation of research into S&E innovations. • And others, including “identify social, behavioral, and economic drivers and consequences of technological innovations.”
Challenges and Focus Areas	<p>Sec. 10387 (p. 571)</p> <ul style="list-style-type: none"> • Directs NSF to identify and regularly update up to 5 “U.S. societal, national, and geostrategic challenges that may be addressed by technology” and up to 10 key technology focus areas.” The NSF Director shall review the list of technology areas annually (in coordination with an interagency working group, Director of National Intelligence and FBI) and consider input from the stakeholder community. NSF must deliver a report to Congress after each annual review providing the current list and their rationale. • The National Academies will conduct a review of the key technology focus areas and societal, national, and geostrategic challenges after 5 years.
<i>Societal, National and Geostrategic Challenges</i>	<ul style="list-style-type: none"> • Initial list of societal, national, and geostrategic challenges: <ol style="list-style-type: none"> (1) U.S. national security (2) U.S. manufacturing and industrial productivity (3) U.S. workforce development and skills gaps (4) Climate change and environmental sustainability (5) Inequitable access to education, opportunity, or other services
<i>Key Technology Focus</i>	<ul style="list-style-type: none"> • Initial list of key technology focus areas: <ol style="list-style-type: none"> (1) AI, machine learning, autonomy, and related advances (2) High performance computing, semiconductors, and advanced computer hardware and software (3) Quantum information science and technology (4) Robotics, automation, and advanced manufacturing (5) Natural and anthropogenic disaster prevention or mitigation (6) Advanced communications technology and immersive technology (7) Biotechnology, medical technology, genomics, and synthetic biology (8) Data storage, data management, distributed ledger technologies, and cybersecurity, including biometrics (9) Advanced energy and industrial efficiency technologies, such as batteries and advanced nuclear technologies

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	(10) Advanced materials science
Regional Innovation Engines	Sec. 10388 (p. 577) <ul style="list-style-type: none"> Codifies NSF’s new Regional Innovation Engines initiative launched in 2022. Program seeks to “advance multidisciplinary, collaborative, use-inspired and translational research, and technology development in key technology focus areas” and “address regional, national, societal, or geostrategic challenges,” among others.
Translation Accelerator	Sec. 10389 (p. 585) <ul style="list-style-type: none"> Calls on NSF to establish Translation Accelerators “to further the research, development, and commercialization of innovation in the key technology focus areas.” Each partnership should comprise at least two of the following: universities, companies, nonprofit organizations, federal agencies, or other entities determined by NSF. Directs NSF to endeavor to maintain a balance in the number of Regional Innovation Engines and Translation Accelerators.
Test Beds	Sec. 10390 (p. 586) <ul style="list-style-type: none"> Working with NIST and DOE, NSF shall establish and operate test beds to advance the development, operation, integration, deployment, and demonstration of new, innovative critical technologies.
Entrepreneurial Fellowships	Sec. 10392 (p. 595) <ul style="list-style-type: none"> Codifies the NSF Entrepreneurship Fellows program, providing support to help develop leaders capable of maturing promising ideas and technologies from lab to market and forge connections between academic research and the government, industry, financial sectors, and other end users.
SUBTITLE H – ADMINISTRATIVE AMENDMENTS (P. 624)	
Science and Engineering Indicators Report	Sec. 10399F (p.625) <ul style="list-style-type: none"> Changes the submission date for the Science and Engineering Indicators Report from January 15 to March 15.
TITLE V—BROADENING PARTICIPATION IN SCIENCE (p. 651)	
SUBTITLE A – STEM OPPORTUNITIES (P. 651)	
Policies for Caregivers	Sec. 10501 (p. 651) <ul style="list-style-type: none"> Within 12 months, OSTP shall provide guidance to science agencies to establish policies providing flexibility to researchers with caregiving responsibilities, including flexibility in time, no-cost extensions, and grant supplements.
Data on Federal Research Grants	Sec. 10502 (p. 653) <p>Each year, all federal science agencies collect standardized record-level annual information on demographics, primary field, award type, institution type, review rating, budget request, funding outcome, and awarded budget for all research grant applications. NSF publish statistical summary data collected by the survey.</p>

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Collection of Demographic Data	Sec. 10504 (p. 656) Every 5 years, NSF shall survey grantees on the demographics of STEM faculty , including by sex, race, socioeconomic, ethnicity, citizenship status, and years since completion of doctoral degree. NSF publish statistical summary data collected by the survey.
Cultural and Institutional Barriers to STEM	Sec. 10505 (p. 658) <ul style="list-style-type: none"> • Directs OSTP/NSF to develop guidance to universities and federal labs for best practices for conducting periodic climate surveys of STEM departments/divisions and providing educational opportunities (workshops) re: identifying cultural or institutional barriers to recruitment, retention, or advancement of women, racial and ethnic minorities, and others underrepresented in STEM.
SUBTITLE B – RURAL STEM EDUCATION RESEARCH (P. 663)	
NSF Rural STEM Activities	Sec. 10512 (p. 663) <ul style="list-style-type: none"> • NSF may make awards for research and development activities to advance innovative approaches to support and sustain high-quality STEM teaching in rural schools. Funds can be used to engage rural educators, principals, and other school leaders in PreK-12 in professional learning opportunities to expand STEM knowledge and to support research on effective STEM teaching and school leadership in rural settings, among others. May include establishment of a pilot program of regional cohorts in rural areas. • NSF may award grants for research and development of programming to identify the barriers rural students face in accessing high-quality STEM education.
SUBTITLE C – MSI STEM ACHIEVEMENT (P. 679)	
General	Sec. 10521 (p. 679) <ul style="list-style-type: none"> • GAO Review – Within 3 years, the Government Accountability Office prepare an inventory of competitive funding programs and initiatives carried out by federal research agencies that are targeted to HBCUs, Tus, and MSIs, or in partnership with; assess federal agency outreach activities to increase participating and competitiveness of HBCUs, TCUs, and MSIs in the programs; and recommend any increases needed to the participation of and rate of success of HBCUs, TCUs, and MISs in funding programs. Sec. 10522 (p. 680) <ul style="list-style-type: none"> • Federal agencies work with the Interagency Working Group on Inclusion in STEM and OSTP to develop uniform policy guidelines for agency outreach to MSIs. • Strategic Plan – Within 1 year, OSTP shall develop a strategic plan for agencies to assist with increasing capacity of MSIs to compete for federal science grants.
SUBTITLE D – COMBATTING SEXUAL HARASSMENT IN SCIENCE (p. 700)	
Research Grants	Sec. 10534 (p. 702) <ul style="list-style-type: none"> • NSF award grants to expand research to better understand the factors contributing to, and consequences of, sexual harassment and gender harassment affecting individuals in the STEM workforce.
Responsible Conduct of Research	Sec. 10534 (p. 702) <ul style="list-style-type: none"> • Update the NASEM report, “On Being a Scientist: A Guide to Responsible Conduct in Research.”

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Interagency Working Group	Sec. 10536 (p. 705) <ul style="list-style-type: none"> Directs OSTP to establish an interagency working group for the purpose of coordinating federal science agency efforts to reduce the prevalence of harassment involving grant personnel.
National Academies	Sec. 10537 (p. 712) <ul style="list-style-type: none"> Within 3 years, the National Academies shall study the influence of sex based and sexual harassment and gender harassment in universities on career advancement.
TITLE VI—MISCELLANEOUS S&T PROVISIONS (p. 714)	
SUBTITLE A – SUPPORTING EARLY-CAREER RESEARCHERS (p. 714)	
Early Career Research Fellowships	Sec. 10601 (p. 714) <ul style="list-style-type: none"> NSF may establish a 2-year pilot program to award grants to highly qualified early-career investigators to carry out an independent research programs for no more than 2 years.
SUBTITLE B – NATIONAL SCIENCE AND TECHNOLOGY STRATEGY (p. 716)	
National Science and Technology Strategy	Sec. 10611 (p. 716) <ul style="list-style-type: none"> OSTP is directed to develop a comprehensive national science and technology strategy for the U.S. for meeting the R&D objectives for the following 4 years. in the quadrennial review. The President shall submit to Congress each year a report on the national S&T strategy for the U.S., including a description of strategic objectives and priorities necessary for maintaining global leadership; programs, policies, and activities that the President recommends across federal agencies to achieve the strategic objectives; and global trends in S&T, including potential threats to U.S. leadership.
Quadrennial S&T Review	Sec. 10613 (p. 734) <ul style="list-style-type: none"> Starting in 2023 and every 4 years thereafter, OSTP shall review the U.S. S&T enterprise and include recommendations for maintaining global leadership. These may include an integrated view of, and recommendations for S&T policy across the government while considering economic and national security, assess and recommend priorities for research programs, assess global competition, and others.
SUBTITLE D – RESEARCH SECURITY (p. 802)	
Requirements for Foreign Talent Recruitment Programs	Sec. 10631 (p. 802) <ul style="list-style-type: none"> OSTP will publish a uniform set of guidelines for federal research agencies regarding foreign talent recruitment programs, including a prohibition of all federal employees from participating in foreign talent recruitment programs. Prohibits research awards from being made to any project in which a potential grantee is a participant in a malign foreign talent recruitment program. OSTP is given authority to define and describe these programs.
Malign Foreign Talent	Sec. 10632 (p. 804)

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Recruitment Program Prohibition	<ul style="list-style-type: none"> Requires federal research agencies to establish policies preventing participants in malign foreign talent recruitment programs from receiving grants or participating in federally funded research. Does not prohibit international research activities such as scholarly presentations, publishing materials, or attending international conferences.
Review of Contracts and Agreements	<p>Sec. 10633 (p. 807)</p> <ul style="list-style-type: none"> Federal research agencies have the authority to require institutions of higher education to provide disclosure or other supporting documents on any potential foreign conflicts of interest when submitting grants or contract applications.
Research Security Training Requirements	<p>Sec. 10634 (p. 809)</p> <ul style="list-style-type: none"> Mandates federal award applicants and institutions to certify annually that they have completed research security training. OSTP has the authority to develop the guidelines for these research security trainings.
Definitions	<p>Sec. 10638 (p. 815)</p> <ul style="list-style-type: none"> Foreign Country of Concern – Strictly defined as the People’s Republic of China, the Democratic People’s Republic of Korea, the Russian Federation, the Islamic Republic of Iran, or any other country determined to be a country of concern by the Secretary of State. Malign Foreign Talent Recruitment Program – Any program, position, or activity that includes cash or other kind of compensation directly provided to an individual by a foreign country or an entity affiliated with a foreign country in exchange for the unauthorized transfer of intellectual property, materials, data, or other non-public information, or a foreign affiliated program that requires individuals to otherwise violate the terms and conditions of participating in federally funded research.

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APPENDIX A: FUNDING TABLES FOR THE *CHIPS AND SCIENCE ACT*

Table 1: Authorization Levels, FY 2023-FY2027

...	FY 2022*	FY 2023	%	FY 2024	%	FY 2025	%	FY 2026	%	FY 2027	%	5-Year Total
NSF, total	8,838,000,000	11,897,480,000	34.6%	15,646,930,000	31.5%	6,706,670,000	6.8%	17,832,420,000	6.7%	18,919,180,000	6.1%	114.1%
R&RA	7,159,400,000	9,050,000,000	26.4%	12,050,000,000	33.1%	12,850,000,000	6.6%	13,800,000,000	7.4%	14,700,000,000	6.5%	105.3%
<i>TIP</i>	725,000,000	1,500,000,000	106.9%	3,350,000,000	123.3%	3,550,000,000	6.0%	3,800,000,000	7.0%	4,100,000,000	7.9%	465.5%
<i>R&RA non TIP</i>	6,434,400,000	7,550,000,000	17.3%	8,700,000,000	15.2%	9,300,000,000	6.9%	10,000,000,000	7.5%	10,600,000,000	6.0%	64.7%
STEM Ed	1,006,000,000	1,950,000,000	93.8%	2,500,000,000	28.2%	2,700,000,000	8.0%	2,850,000,000	5.6%	3,000,000,000	5.3%	198.2%
MREFC	249,000,000	249,000,000	0.0%	355,000,000	42.6%	370,000,000	4.2%	372,000,000	0.5%	375,000,000	0.8%	50.6%
AOAM	400,000,000	620,000,000	55.0%	710,000,000	14.5%	750,000,000	5.6%	770,000,000	2.7%	800,000,000	3.9%	100.0%
NSB	4,600,000	5,090,000	10.7%	5,320,000	4.5%	5,560,000	4.5%	5,810,000	4.5%	6,070,000	4.5%	32.0%
OIG	19,000,000	23,390,000	23.1%	26,610,000	13.8%	31,110,000	16.9%	34,610,000	11.3%	38,110,000	10.1%	100.6%

Table 2: TIP Directorate as a percentage of R&RA

	R&RA Total	SES Auth	%
2022*	7,159,400,000	725,000,000	10.1%
2023	9,050,000,000	1,500,000,000	16.6%
2024	12,050,000,000	3,350,000,000	27.8%
2025	12,850,000,000	3,550,000,000	27.6%
2026	13,800,000,000	3,800,000,000	27.5%
2027	14,700,000,000	4,100,000,000	27.9%

Table 3: TIP Directorate as a percentage of NSF Total

	NSF Total	SES Auth	%
2022*	8,838,000,000	725,000,000	0.0%
2023	11,897,480,000	1,500,000,000	11.2%
2024	15,646,930,000	3,350,000,000	15.7%
2025	16,706,670,000	3,550,000,000	18.2%
2026	17,832,420,000	3,800,000,000	19.1%
2027	18,919,180,000	4,100,000,000	19.0%

*enacted level