



## Research and Economic Development Newsletter

March 30, 2021

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## RED Updates

### A Message from the Vice Chancellor



Dear Research Community,

Spring is here! In a recent message, our Chancellor referred to the faithful blooming of the campus orange trees this time of the year as one of the things that have not changed from what they were before the COVID-19 pandemic. In addition, I think we would all agree that what has certainly not changed during these difficult times either is the resilient commitment of the campus community in the pursuit of our research and scholar activities, which continue to bloom too.

On the other hand, fortunately, some troubling situations related to the pandemic have changed or are starting to change. In particular, the continuing efforts with safety precautions, testing, and, more recently, vaccination are starting to pay off and [we are seeing the numbers associated with the COVID-19 pandemic improve](#). This improvement in conditions has helped Riverside County to move into the red tier of *Risk Level Substantial: Some non-essential indoor business operations open with modifications*.

Thank you for all what you do to keep our research enterprise going on in the safest possible way. I hope the following good news will further help in those endeavors. Please follow the links provided for detailed information and take some time to look at the many other contents of this newsletter.

Stay safe,

Rodolfo

#### **Training Grant Proposal Preparation Fund (TGPPF)**

We are happy to announce that 4 proposals submitted in response to the [TGPPF call we sent out in January](#) have been awarded funding to help PIs compete for externally sponsored training grants. The 4 proposals combined include 10 faculty members from 4 schools/colleges and, if successfully funded, could provide support for some 20 students for multiple years. We are pleased about the internal response to the first competition in this program, which we intend to repeat in future years. I want to thank the Graduate Division, in particular Graduate Dean Shaun Bowler and Associate Dean Emma Wilson, for providing additional funding so the 4 internal awards could be made.

#### **Extramural Funding Opportunity Preparation Award (EFOPA) (NEW!)**

We are launching a new internal program to enable UCR faculty to increase their competitiveness for external funding. The key consideration for the internal awards will be whether the project can be leveraged toward securing new extramural research funding in the near future. This new EFOPA program has two tracks:

- “Early-Career EFOPA”: In light of COVID-19 and its disproportionate impact on various groups of faculty members, this particular award aims to support junior faculty and it is open only to UCR tenure-track assistant professors
- “General EFOPA”: Open to all UCR individuals eligible to serve as a Principal Investigator.

The deadline for applications is April 19, 2021. We intend this year’s call to serve as a pilot, and based on responses and available funds, we would like to continue the program in some form in future years. Please see the [program description](#).

#### **Return of Undergraduate Students to Research Facilities**

Undergraduate students at UC Riverside will again have the opportunity to conduct laboratory research on campus. Until now, in the pandemic that COVID-19 spawned, only graduate students, postdoctoral researchers, their faculty advisors, and key personnel were permitted to work in labs at 25% occupancy capacity. The improvements on the pandemic conditions have now made it feasible for undergraduate students to return to doing research in labs, starting this spring term. **The labs will continue to operate at 25% maximum occupancy with current preventive measures in place.** We hope this return will start to address an important educational need for our students disrupted by COVID-19 and expect to further loosen up restrictions in the near future. It should also help with the research projects of many PIs who have patiently waited for the pandemic conditions to improve so we can move ahead with this measure while minimizing the risks for all those involved. I am especially thankful to all the members of the Research Ramp-up Committee for providing very thoughtful guidance and advise to make this possible. Please read the [full details governing the students' return developed by the committee.](#)

### **New Thermionic Transmission Electron Microscope**

Through investments from the Offices of the Provost, the Dean of the College of Natural and Agricultural Sciences, and RED, we have been able to upgrade UCR's electron microscopy capabilities by purchasing a new modern transmission electron microscope ([ThermoFisher Scientific™ Talos L120C™ TEM](#)). As part of the RED Research Centers, the new instrument is housed in the campus-wide Center for Advanced Microscopy and Microanalysis (CFAMM). I would like to thank everyone involved in making this possible and, in particular, Dr. Krassimir Bozhilov, CFAMM Director, for his leadership and constant efforts running this essential core research facility.

### **Update on the AAALAC International Accreditation Visit**

As those of you involved in animal care and use of laboratory animals in research know, every three years we undergo a reaccreditation process conducted by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International. The accreditation and oversight from this nonprofit organization is in addition to others regulated by federal agencies. While, in general, AAALAC accreditation is voluntary for many institutions, the UC Office of the President makes it a mandatory requirement for all UC campuses.

UCR recently received an AAALAC site visit during the week of March 8 for the purpose of reaccreditation. While the final outcome of the process is decided by the AAALAC Council on Accreditation, we had a very positive visit and received useful feedback from the committee of visitors. In particular, the visitors expressed high praises for the work of our vivarium staff, which has remained uninterrupted during the pandemic. We have addressed all items pointed out by the visit in our Post Site Visit Communication to AAALAC and expect to receive the final determination for reaccreditation very soon. We will continue to keep our broad animal research community informed of it as well as of any changes in policies and practices.

I want to take this opportunity to thank again all of those who were involved in this immensely time consuming but important process, which allows us to continuously revise and improve our animal research activities. In particular, my deep appreciation and thanks goes to the individuals involved in the process from the Office of Research Integrity, Office of Campus Veterinarian, IACUC, EH&S, and our dedicated vivarium staff. Thank you also to the faculty and students who participated in the visit and to all our researchers for responsibly adhering to the compliance regulations governing this critical area of research.

### **UC Reaches Open Access Agreement with Elsevier**

You may have heard already from the UCR Library or the national news that, after more than two years of negotiations, the University of California announced a transformative open access agreement with Elsevier, the world's largest academic publisher. If you have not seen it yet, please read the information about this [promising agreement.](#)



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# Office of Technology Partnership Update

## Innova'R Workshops

Applications are open for the Office of Technology Partnership's entrepreneurship training program INNOVA'R Spring Cohort! Discover if your technology has commercial value in this hands-on online program accompanied by expert mentors.

- Receive \$3,000 for customer validation and prototype development
- Qualify for \$50,000 in additional funding from the NSF
- Secure special preference for Proof of Concept grant funding of up to \$35,000 through the Office of Technology Partnerships (OTP).

Deadline to [apply for the INNOVA'R program is April 2.](#)

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## Riverside County Innovation Month

OTP is actively participating in Riverside County's April innovation month hosting pitch competitions, SBIR workshops, startup bootcamps, lunch and learns, and more! Learn more about these events at <https://www.rivcoinnovation.org/events>.

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## Edge Sound Research

OTP is pleased to announce that Edge Sound Research, a startup led by UCR graduates with technology licensed from Professor Paulo Chagas's research lab, recently won 2<sup>nd</sup> place Audience Choice Award at the VentureWell OPENminds Competition. The startup has participated in the INNOVA'R program, represented UC Riverside at national pitch competitions and conferences, including the Consumer Electronic Show in 2020, through Launchpad @ UCR, and is receiving mentorship from OTP's EPIC Small Business Development Center which has accelerated their success.

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## OTP Proof of Concept Fund

Through the Proof of Concept Fund, OTP has been able to support 54 number of faculty projects since 2013 with a total of \$1.86M, bringing them closer to commercialization. OTP is looking for donors and supporters of this fund. If you, or anyone you know would like to financially support the commercialization of a UCR technology [you can donate here](#).

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## MRB Incubator

The MRB Incubator welcomed its third and fourth tenants, NeyroblastGX and GattaCo, NeyroblastGX's researchers are performing a US Army contract to create nanoparticle-based supplements to support the immune systems of military personnel. GattaCo has developed a patented microfluidics device with potential to revolutionize diagnostics and home sample collection and is performing validation studies in the Incubator. Starting in April, four UCR researchers, led by UCR Microbiome Initiative Director, Quinn McFrederick, are taking turns to work with new microbiome Prospector equipment on loan from GALT and installed in a dedicated microbiome room in the Incubator. Their projects will include exploring the microbiome of soil isolates relevant for citrus culture and studying the microbial contents of the guts of honey bees. More details on all three developments will be given during the monthly MRB Research Seminar on April 30th at 4 PM. Details available from [david.pearson@ucr.edu](mailto: david.pearson@ucr.edu).

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## Office of Research Integrity Update

### Zoom Registration for ORI Seminar: The RULE of 3

[The ORI Seminar Series](#) focuses on ethical dilemmas and hot topics in research, integrity, and research with human participants. The next seminar, entitled "**The RULE of 3 - Early Literacy and Equity: Language, Vocabulary and Thinking Skills**" will be led by **Dr. Linda Ventriglia-Navarrette**, Director of Project Moving Forward. The presentation will take place at **2:00 PM on Thursday, April 15, 2021**. Advance registration is required.

You can register for the seminar here:

[https://ucr.zoom.us/webinar/register/WN\\_6hG3h-kXQm-9--RnGi6okg](https://ucr.zoom.us/webinar/register/WN_6hG3h-kXQm-9--RnGi6okg)

#### Summary

The purpose of Project Moving Forward is to level the playing field for English learners and other diverse learners so they can access and be successful with the core curriculum. The goal is to close the opportunity gap by accelerating students' language and literacy skills through an engaging and rigorous, research-based system of, language, literacy, vocabulary and thinking skills starting in kindergarten. Project Moving Forward's accelerated language and literacy program enables students to open the doors to learning.

#### Biography

Dr. Linda Ventriglia-Navarrette is the creator of RULE of 3 and directs Project Moving Forward at UCR. She has a Ph.D. in curriculum and second language acquisition and a degree in Public Administration from Harvard University.

This event is free and open to the public. Prior registration via the link above is required. The number of registrants is limited.

Please share this email with anyone who may be interested in attending.

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## Sponsored Programs Update

## Commitment to Export Control Compliance

The University of California maintains an open academic environment in support of its mission of teaching, research, and public service. At the same time, U.S. export control laws and regulations control the conditions under which certain information, technologies, and commodities can be exported overseas to anyone, including U.S. citizens, or to a foreign national within the U.S. The University of California, Riverside (“UCR”) is committed to ensuring full compliance with U.S. export control regulations and sanction laws, including without limitation the Export Administration Regulations (“EAR”), the International Traffic in Arms Regulations (“ITAR”), and regulations and orders administered by the Treasury Department’s Office of Foreign Assets Control (collectively “Export Controls”). This commitment of compliance extends to all research and non- research activities covered by Export Controls and conducted at UCR or other locations by its faculty, academic appointees, staff, students, including student employees (collectively, “UCR Members”) and non-employee participants in UCR programs.

To this end, UCR has established an Export Control Office within the office of Research and Economic Development. The mission of the Export Control Office is to aid UCR Members in their research activities to ensure continued compliance with applicable Export Controls. UCR recognizes that despite such efforts, irregularities or instances of non-compliance may arise. Achieving the highest standard of export compliance can only be met through the full participation of all UCR Members and requires positive action of all persons involved with export transactions. Accordingly, each UCR Member has a duty to abide by Export Controls regulations and report possible violations to the Export Control Office for review.

Additional information and training materials on Export Controls can be obtained through the Export Control Office website or by contacting UCR’s Export Control Officer, Roberto Galvan Ramos, Jr., at [exportcontrol@ucr.edu](mailto:exportcontrol@ucr.edu).

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## NIH Notice [NOT-OD-21-073](#)

### **Upcoming Changes to the Biographical Sketch and Other Support Format Page for Due Dates on or after May 25, 2021**

“In an effort to support strong collaboration between Federal research agencies, NIH has made every effort to align the Biographical Sketch (Biosketch), Other Support format page and Application Form Instructions with the guidance issued by the Office of Science and Technology Policy Joint Committee on the Research Environment.

As a result, this Guide Notice informs the extramural community that NIH has updated its application forms and instructions to support the need for applicants and recipients to provide full transparency and disclosure of all research activities, foreign and domestic.”

**The updated forms and instructions will be required for use for applications and Research Performance Progress Reports (RPPR) submitted for due dates on or after May 25, 2021.**

**RED will be providing informational meetings via ZOOM in early May. Please stay tuned for dates and times.**

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## Federal Relations Update

Special thanks to Kathy Eiler, UCR Director of Federal Relations, for providing the information in this section.

## House Votes for on a Path to Citizenship for Undocumented Immigrants

On March 18, the House [approved](#) two bills on immigration: the “Dream and Promise Act,” which would provide a [pathway to citizenship for young undocumented immigrants](#), and the “Farm Workforce Modernization Act,” which would [expand the H2-A program](#) and provide a citizenship route for farmworkers. The Senate Judiciary Committee is likely to consider the [“Dream Act of 2021”](#) in April, and it is expected to gather bipartisan support. UC will continue to advocate for comprehensive immigration reform and for a path to citizenship for our young undocumented community members and their loved ones.

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## Nearly 1,200 Universities, Colleges and Higher Education Organizations send Double the Pell Support Letter to Congress

The University of California (UC), along with the UC Student Association (UCSA) and the UC Graduate and Professional Council (UCGPC) have joined a [coalition letter](#) in support of doubling the maximum annual Pell Grant award. The letter, led by The Institute for College Access & Success (TICAS), was signed by [nearly 1,200 entities](#), including more than 300 organizations and nearly 900 individual colleges and universities.

Doubling the Pell Grant continues to be a top priority for the university, and we are proud to join the 1,200 other signatories in affirming our commitment to the effort. The Pell Grant is the primary means by which the federal government helps low-income students afford college, but the grant has consistently eroded in value due to disinvestment in higher education and inflation. Doubling the maximum award is crucial to ensuring that low-income students can finance their education without sacrificing their ability to afford their basic needs. Achieving this goal would bolster the rigorous financial aid programs in place at California universities and allow other low-income students across the country to reap the benefits of federal reinvestment in higher education.

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## CFAMM Update

### New Transmission Electron Microscope Talos L120C

Recent developments in science and technology necessitates advanced imaging capabilities at the nanoscale level . UC Riverside has invested over half a million dollars from the Office of Research and Economic Development, The Provost and the CNAS Dean to upgrade electron microscopy capabilities by purchasing a new modern transmission electron microscope (ThermoFisher Scientific™ Talos L120C™ TEM).

The Talos 120C TEM is a 20-120 kV thermionic transmission electron microscope uniquely designed for performance and productivity across a wide range of samples and applications, including 2D and 3D cell imaging, cell organelles, nanomaterials, minerals, polymers, at ambient and cryogenic temperatures.

The Talos L120C TEM is fully computer-controlled with advanced digital imaging supported by 4kx4k CMOS Ceta™ 16M camera, which provides large field-of-view and fast imaging with high sensitivity on a 64-bit platform. To enable imaging and low-temperature transfer of radiation sensitive, frozen-hydrated specimens for cryo-EM the TEM is fitted with Gatan 655 cryo system with Elsa Cryo Holder and Thermo Scientific Vitrobot™ Vitrification Robot for vitrification (rapid cooling) of aqueous samples.

The new TEM was installed in Fall 2020 and is fully operational and available to all UCR researchers, faculty, staff and students. As part of the RED Research Centers, it is housed in the campus-wide Center for Advanced Microscopy and Microanalysis (CFAMM), under the direction of Dr. Krassimir Bozhilov.

For Full Details: <https://cfamm.ucr.edu/Talos120>

## Funding Opportunities

### Limited Submissions with Upcoming Deadlines

For more information about current and past limited submission competitions, as well as details on how to apply, please visit our website at <https://research.ucr.edu/ord/limitedsubmissions>.

### Pew Biomedical Sciences

**Internal Deadline:** April 22, 2021

**Agency Deadline for Nominations:** May 17, 2021

**Number of Submission Allowed:** 1

**Agency Application Instructions:** [https://www.pewtrusts.org/en/projects/pew-biomedical-scholars/program-details?utm\\_campaign=2021-01-12+Biomed+scholars+update&utm\\_medium=email&utm\\_source=Pew](https://www.pewtrusts.org/en/projects/pew-biomedical-scholars/program-details?utm_campaign=2021-01-12+Biomed+scholars+update&utm_medium=email&utm_source=Pew)

#### Overview:

#### Eligibility for the 2022 Award

Candidates must meet all of the following eligibility requirements: Hold a doctorate in biomedical sciences, medicine, or a related field.

- As of Sept. 1, 2021, hold a full-time appointment at the rank of assistant professor. (Appointments such as research assistant professor, adjunct assistant professor, assistant professor research track, visiting professor, or instructor are not eligible).
- Must not have been appointed as an assistant professor at any institution prior to June 14, 2017, whether or not such an appointment was on a tenure track. Time spent in clinical internships, residencies, in work toward board certification, or on parental leave does not count as part of this four-year limit. Candidates who took parental leave should contact Pew's program office to ensure that application reviewers are aware of their circumstances
- Please note that eligibility criteria have been temporarily expanded to account for COVID-related lab shutdowns and research disruptions. Please direct any questions to the program office at [scholarsapp@pewtrusts.org](mailto:scholarsapp@pewtrusts.org).
- May apply to the program a maximum of two times. All applicants must be nominated by their institution and must complete the 2022 online application.

- If applicants have appointments at more than one eligible nominating institution or affiliate, they may not reapply in a subsequent year from a different nominating entity.
- May not be nominated for the Pew Scholars Program and the Pew-Stewart Scholars Program for Cancer Research in the same year.

Based on their performance during their education and training, candidates should demonstrate outstanding promise as contributors in science relevant to human health. This program does not fund clinical trials research. Strong proposals will incorporate particularly creative and pioneering approaches to basic, translational, and applied biomedical research. Candidates whose work is based on biomedical principles but who bring in concepts and theories from more diverse fields are encouraged to apply.

Ideas with the potential to produce an unusually high impact are encouraged. Selection of the successful candidates will be based on a detailed description of the work that the applicant proposes to undertake, evaluations of the candidate's performance, and notable past accomplishments, including honors, awards, and publications. In evaluating the candidates, the National Advisory Committee gives considerable weight to evidence that the candidate is a successful independent investigator and has published significant work.

Funding from the NIH, other government sources, and project grants from nonprofit associations do not pose a conflict with the Pew scholars program. If you have questions concerning eligibility, please contact Kara Coleman, project director, Pew Biomedical Programs at 215-575-4925 in advance of applying.

### **Terms of the Award**

#### **Funding terms**

An award of \$75,000 per year for four years will be provided to the sponsoring institution for use by the scholar, subject to annual review of the scholar's progress. Grant agreements will be issued in August of the award year. The awarded funds may be used at the discretion of the Pew scholar, for personnel, equipment, supplies, or travel directly related to the scholar's research and as to best advance his or her research and career. The amount of the award that may be used for the principal investigator's salary is limited to \$12,500 per year (including benefits) or \$50,000 over the duration of the grant. There are no limits on student or postdoctoral salaries.

- Not more than 8 percent (\$24,000) of the total award value may be allocated for facilities and administration (F&A) charges or indirect costs (IDCs).
- Should the funds not be immediately required, they may be accumulated and carried over through the four years of the grant period and, with written approval of the program office, the grant may receive a no-cost extension for one additional (fifth) year (without additional funds).
- Subawards are allowed.

#### **Investigator effort**

It is expected that Pew scholars will spend at least 80 percent of their time in work or activities related to the accomplishment of their overall research goals (which are not restricted to the specific aims proposed for this award). However, Pew provides flexible support to the general research aims of the scholar and does not require effort reporting.

## **Other Funding Opportunities**

### **Extramural Funding Opportunity Preparation Award (EFOPA)**

**Deadline for Submission:** April 19, 2021

Please see <https://research.ucr.edu/vcr/opportunities> for details about how to apply..

UCR's Office of Research and Economic Development (RED) is pleased to announce the new **Extramural Funding Opportunity Preparation Award (EFOPA)** program. The intention of the program is to enable UCR faculty to increase their competitiveness for extramural funding. Proposals requesting internal funding in an amount between \$5,000 and \$25,000 are solicited and it is anticipated that a total of approximately \$600,000 will be disbursed. This internal competition will be piloted this year and could be continued on an annual cycle based on its initial outcomes, applicants' and awardees' feedback, and funds available. For this initial competition, funds will need to be spent between May 15, 2021 and March 31, 2022.

#### **PURPOSE**

The program is intended to serve as a catalyst for UCR faculty to be more competitive for extramural funding. The key consideration for funding will be whether the project can be leveraged toward securing new extramural research funding in the near future. The internal award is to be used to conduct preliminary research or scholarly activities, generate data, establish collaborations, and/or conduct other planning activities, which will allow awardees to put together compelling proposals for extramural funding opportunities for which they could not be equally competitive otherwise. Faculty from all disciplines and methodological approaches from all schools, colleges, departments, and programs are encouraged to apply. Proposers will be required to target at least one external funding opportunity with a posted deadline on or before March 31, 2022. Inter-disciplinary and inter-departmental collaborations are encouraged but not required.

#### **TYPES OF AWARDS**

There are two tracks for this program:

- **“Early-Career EFOPA”:** In light of COVID-19 and its disproportionate impact on various groups of faculty members, this particular award aims to support junior faculty and it is **open only to UCR tenure-track assistant professors**
- **“General EFOPA”:** **Open to all UCR individuals eligible to serve as a Principal Investigator.**

#### **ELIGIBILITY**

Proposals are invited from all UCR individuals eligible to serve as a Principal Investigator. (For additional information on PI eligibility see ([Policy #527-3](#)). Both single and multiple-PI proposals will be accepted. However, if a multiple-PI proposal is submitted to the Early Career track, all the PIs need to be tenure-track assistant professors.

#### **USE OF FUNDS**

Funds may be used for any activity directly related to the conduct of the research or scholarly activity, e.g., salaries and benefits for undergraduate students, graduate students, postdoctoral researchers, or similar position; software or supplies; small pieces of equipment (less than \$5,000); facility recharge; travel to meet with funding agencies, attend proposer workshops, coordinate with collaborators, and conduct field work; or other research expenses required to facilitate preparation of the proposal. Funds may **not** be used for cost-share in the external funding opportunity, faculty summer salaries, administrative staff, course buyouts, seminar speakers, consultants, conferences, or travel to regular conferences. All funds must be expended by the end of the project period. To focus on projects that can make rapid progress, no extensions of the award will be approved and unexpended funds will be recovered.

#### **DEADLINE**

The internal proposal deadline for both tracks is **April 19, 2021 at 11:59 p.m.**

#### **PROGRESS TRACKING AND REPORTING**

Awardees will be required to submit a two-page final project report within 60 days of the end of the award period. The final project report should include the results of the research, a financial statement, information about the external funding opportunity submission or efforts underway to obtain external funding. A further update of the report as soon as the PI knows of the outcome of the extramural funding opportunity

submission is required too. Lack of timely reporting may result in exclusion from future award opportunities. RED will use the reporting information to evaluate the efficacy of the EFOPA program and its sustainable continuation.

#### **REVIEW PROCESS**

Proposals will be reviewed by a committee consisting of the RED Vice Chancellor and Senior Associate Vice Chancellor, and Associate or Divisional Deans from each of UCR's colleges represented among the applicants. The primary evaluation criteria will be the feasibility of the project being completed, the need of the internal award to seek the identified extramural funding opportunity, and the likelihood of securing such funding. The Associate/Divisional Deans will be also asked for input on the importance of the proposed project to their college. The appropriateness of the budget request vs. the amount of external funding to be sought out will be considered too. Because we expect a large number of proposals to be submitted for the competition, and in the interest of time to communicate the recipients of the awards, no detailed review feedback will be provided. However, recipients may be asked to reformulate part of the proposal or modify their proposed budgets.

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## **NSF Social, Behavioral and Economic Sciences - Converge Accelerator Program**

**Deadline for Submission:** May 5, 2021

Please see [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505795](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505795) for details.

Families, communities and businesses across the U.S. depend on electronic communication systems for a range of important activities, like finding employment opportunities, education, technological innovation, assessing security threats and more. Those activities are jeopardized by misinformation and other disruptions to the trustworthiness and accuracy of information provided by our communication systems.

To address this critical national challenge, the U.S. National Science Foundation's [Convergence Accelerator program](#) is providing a new funding opportunity aimed at fostering greater trust and authenticity in communication systems. The Convergence Accelerator program focuses on high-impact societal challenges by transitioning fundamental research and discoveries into practice.

Multidisciplinary research proposals should describe methods to develop original tools, techniques or educational materials that can effectively mitigate or prevent critical threats to our communication systems and thus increase their public value.

Required letters of intent are due by May 5, 2021. For additional deadlines and requirements see the [Convergence Accelerator funding opportunity](#).

"The massive and often automated dissemination of false information and other inauthentic behaviors on electronic networks has created serious challenges. It threatens our country's economic growth and national security and inhibits our ability to use the internet for collaboration and innovation. Addressing this issue is one of the defining scientific challenges of our time and we believe our research community is up to the task," says Arthur Lupia, NSF Assistant Director and head of the Social, Behavioral and Economic Sciences Directorate.

A second focus of the Convergence Accelerator funding opportunity is the "Networked Blue Economy." The initiative supports multidisciplinary research on ocean innovation, exploration and sustainable utilization. Researchers in the social, behavioral and economic sciences are invited to submit proposals to both efforts.

Informational webinars will be held on April 8 and April 20. Visit the [Convergence Accelerator webinar registration page](#) for details.

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## NSF Mathematical and Scientific Foundations of Deep Learning

**Deadline for Submission:** May 12, 2021

Please see [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505873](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505873) for details.

Deep learning has met with impressive empirical success that has fueled fundamental scientific discoveries and transformed numerous application domains of artificial intelligence. Our incomplete theoretical understanding of the field, however, impedes accessibility to deep learning technology by a wider range of participants. Confronting our incomplete understanding of the mechanisms underlying the success of deep learning should serve to overcome its limitations and expand its applicability. The National Science Foundation Directorates for Mathematical and Physical Sciences (MPS), Computer and Information Science and Engineering (CISE), Engineering (ENG), and Social, Behavioral and Economic Sciences (SBE) will jointly sponsor new research collaborations consisting of mathematicians, statisticians, electrical engineers, and computer scientists. Research activities should be focused on explicit topics involving some of the most challenging theoretical questions in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration should conduct training through research involvement of recent doctoral degree recipients, graduate students, and/or undergraduate students from across this multi-disciplinary spectrum. This program complements NSF's [National Artificial Intelligence Research Institutes](#) and [Harnessing the Data Revolution](#) programs by supporting collaborative research focused on the mathematical and scientific foundations of Deep Learning through a different modality and at a different scale.

A wide range of scientific themes on theoretical foundations of deep learning may be addressed in these proposals. Likely topics include but are not limited to geometric, topological, Bayesian, or game-theoretic formulations, to analysis approaches exploiting optimal transport theory, optimization theory, approximation theory, information theory, dynamical systems, partial differential equations, or mean field theory, to application-inspired viewpoints exploring efficient training with small data sets, adversarial learning, and closing the decision-action loop, not to mention foundational work on understanding success metrics, privacy safeguards, causal inference, and algorithmic fairness.

### Award Information

Anticipated Type of Award: Continuing Grant

Estimated Number of Awards: 15 to 20

Fifteen to twenty awards of various sizes with up to \$1,200,000 per award total for up to three years are anticipated, subject to the availability of funds and receipt of meritorious proposals. Award size is contingent upon the scope, scale and complexity of the proposed project.

Anticipated Funding Amount: \$15,000,000

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

### Eligibility Information:

PI teams must collectively possess appropriate expertise in three disciplines - computer science, electrical engineering, and mathematics/statistics. Each project must clearly demonstrate substantial collaborative contributions from members of their respective communities; projects that increase diversity and broaden participation are encouraged. Teams may be composed of members at multiple institutions or a single institution.

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# NSF Social, Behavioral and Economic Sciences - Understanding the Rules of Life

**Deadline for Submission:** May 10, 2021

Please see [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505871](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505871) for details.

Intertwined networks connect living things in profoundly complex and oftentimes unexpected ways. From individual cells and organisms to entire ecosystems and industries, the emergence of such networks is the focus of a new solicitation calling for research proposals from a broad range of scientific disciplines, including the social, behavioral and economic sciences.

Proposals to the [Understanding the Rules of Life: Emergent Networks solicitation](#) should be submitted by May 10, 2021.

The effort is part of the “Understanding the Rules of Life: Predicting Phenotype” initiative, one of ten transformative “big ideas” supported by the U.S. National Science Foundation.

“Exploring the vast networks connecting living things and environments can reveal valuable insights and discoveries,” says Arthur Lupia, head of NSF’s Directorate for Social, Behavioral and Economic Sciences. “For example, the chestnut blight of the early 1900s showed how a fungus deadly to a particular tree species can trigger complex ripple effects in aspects of daily life critical for many thousands of people, like their food supply and employment opportunities. By better understanding emerging networks — including those involving human behavior and society — we can strengthen our nation’s resilience and create greater opportunities for innovation and prosperity.”

Understanding the Rules of Life: Emergent Networks is a collaborative initiative involving all NSF research directorates and offices. The new solicitation is an opportunity for researchers in the social, behavioral and economic sciences to partner with colleagues in biology, engineering and other disciplines to develop a predictive understanding of how key properties of living systems emerge from the interactions of genomes, phenotypes and other factors, and how emerging networks of natural, social and human-engineered systems influence their environment.

The solicitation seeks proposals that embody crosscutting, convergent research addressing significant scientific questions by integrating perspectives and approaches from multiple disciplines.

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## NOMIS & Science Young Explorer Award

**Deadline for Submission:** May 15, 2021

Please see [www.sciencemag.org/nomis](http://www.sciencemag.org/nomis) for details.

The award is presented for outstanding research performed by the applicant as described in a 1,000-word essay.

**The Grand Prize Winner Receives:**

The Grand Prize winner will be awarded a cash prize in the amount of US \$15,000, and be provided travel and accommodation to the award ceremony, if applicable. Additionally, the Grand Prize winner is invited to present a proposal for funding\* to the NOMIS board, as well as receive a 5 year digital subscription to Science, and have their winning essay published in Science, in print and online.

**Runner(s) Up Receives:**

Runner(s) Up will be awarded a cash prize in the amount of US\$5,000, and be provided travel and accommodation to the award ceremony, if applicable. Additionally, the Runner(s) Up will receive a 5 year digital subscription to Science, and have their winning essay published in Science online.

**Eligibility**

Entrants must be younger than thirty-five (35) years of age and must hold an M.D., Ph.D. or M.D./Ph.D. at the time of entry. The award will be granted annually to one young scientist based on work done in the past 3 years.

Vice Chancellor for Research and Economic  
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