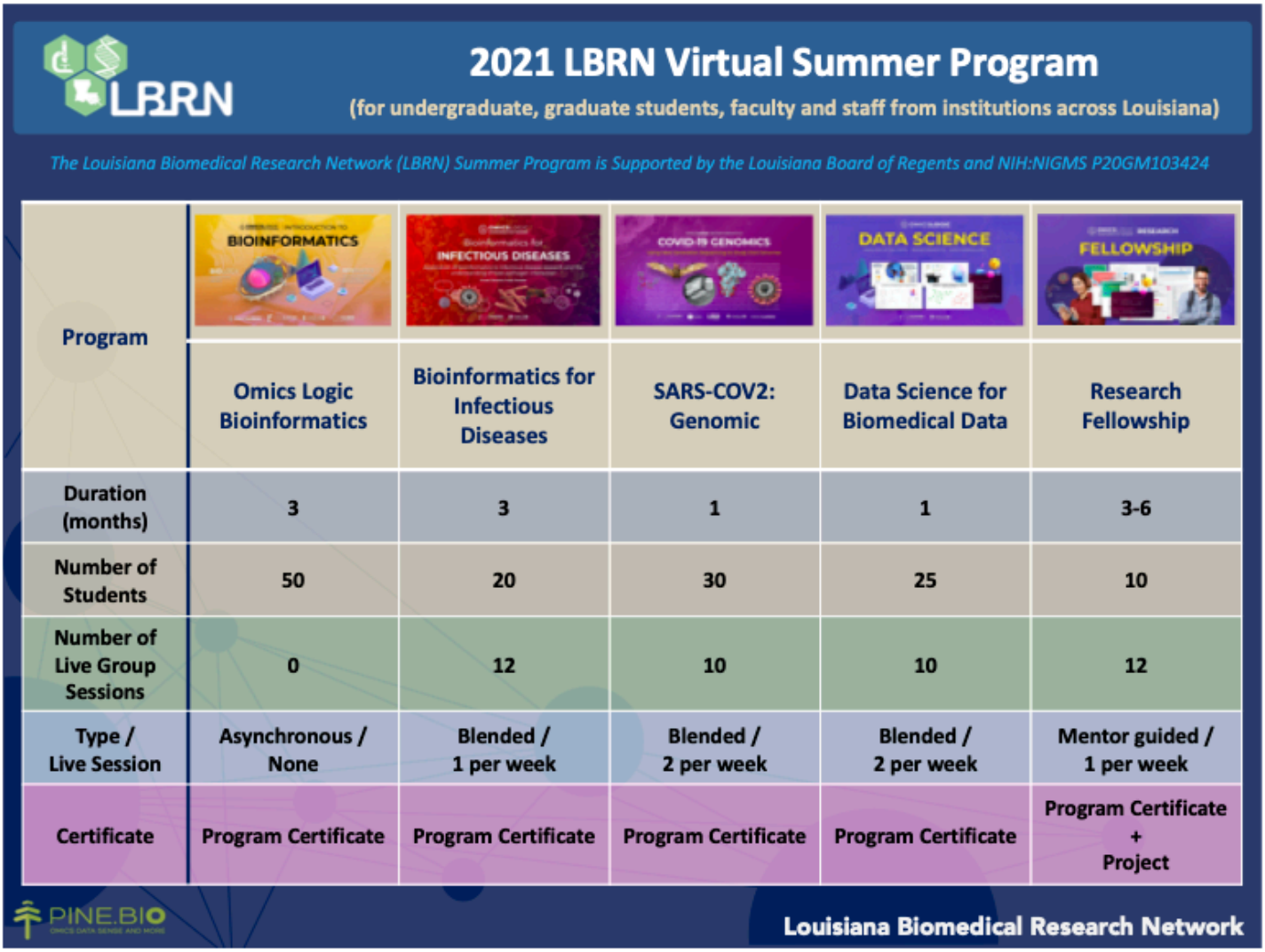
News, Opportunities and Deadlines for June 2021

2021 LBRN Virtual Summer Research Program



LBRN is pleased to make available our **2021 Virtual Summer Program Opportunities** for undergraduate, graduate students, faculty and staff from institutions across Louisiana. This program is in place of our regular summer program, which was cancelled due to COVID-19. This program will proceed in virtual/online formats with support from Pine BioTech.

Deadline for registration is June 16, 2021. Program begins June 21, 2021. Applications will be

reviewed on a first come basis immediately after the deadline. All these courses are free to for undergraduate, graduate students, faculty and staff from institutions across Louisiana.

Please see the following listed programs available for all the program details from each participating LBRN Partner.

*Owing to scheduling logistics "Omic Logic" is the only course that can be taken as a combination with one of the other * programs.*

- **Event Date: Beginning June 21, 2021**
- **Registration Deadline: June 16, 2021**
- **Location: Virtual**

Program List:

- **Omics Logic Bioinformatics**

This program is best suited for students interested to learn about various -omics technologies and how bioinformatics is used in biotechnology, healthcare, agriculture and basic research. Program access provides access to all the asynchronous* online courses (basic course certificates only). This can be taken at the same time as ALL the other programs. *This project can be taken at the same time with any other project listed for our virtual summer program.

- ***Bioinformatics for Infectious Diseases**

This program is dedicated to the applications of bioinformatics to the study of pathogen genomics and host responses. We will explore genomic diversity of pathogens in epidemics, study viral zoonotic spillover, apply evolutionary analysis to understand adaptation and explore examples of viral and bacterial disease development. Participants will have the chance to learn about genomics and apply their understanding to public-domain data. As a result, every participant will learn a) to understand relationships between genomes, strains and haplotypes, b) to find differences in genomic sequences, c) to interpret the functional consequences of identified variants, and d) to study host responses connecting pathogen variation with disease and immunity. This program is an opportunity to gain hands-on experience with curated datasets from the public domain as well as guidance and support of bioinformaticians with experience.

- ***SARS-COV2: Genomic Data Analysis**

In this program, we will learn about the way the SARS-COV-2 pandemic has transformed our appreciation of genomics and bioinformatics. Participants will learn about genomic data analysis tools that can be used to identify specific viral strains, understand multiple sequence alignment,

phylogenetic analysis, and the significance of mutations in the context of viral protein structure and function. We will further discuss the viral genome of SARS- CoV-2 (pathogen causing Covid-19) structure: genes, sub-genomic DNA fragments, proteins, and the virology of the disease. We will discuss how the data and the various analysis tools can help in the characterization of viral genomes, compare, and distinguish between viral strains, identify the impact of mutations on the functionality of viral proteins, and discuss the emerging challenges with the tracking of Variants of Concern (VOCs) reported in media.

- ***Data Science for Biomedical Data**

The rapid growth of high-throughput data, including -omics technologies, gave rise to significant demand for data science skills and experience with bioinformatics methods of analysis. This online training program is designed for beginners and students interested in data-driven research questions. The program will include aspects of data science, such as data wrangling, visualization, statistical analysis, and machine learning. The methods will be reviewed in the context of biomedical and other scientific problems.

- ***Research Fellowship**

The research fellowship program is designed to provide support and guidance on development of an independent research project within a given timeframe (3-6 months). During this time, participants meet on a weekly basis to share their progress and get feedback from the program coordinators. They can also request one-on-one sessions with a mentor on a weekly basis or meet in smaller focus groups. The program is structured around access to various training sessions, weekly progress updates and reviews or focused group meetings on topics of special interest with an expert mentor.

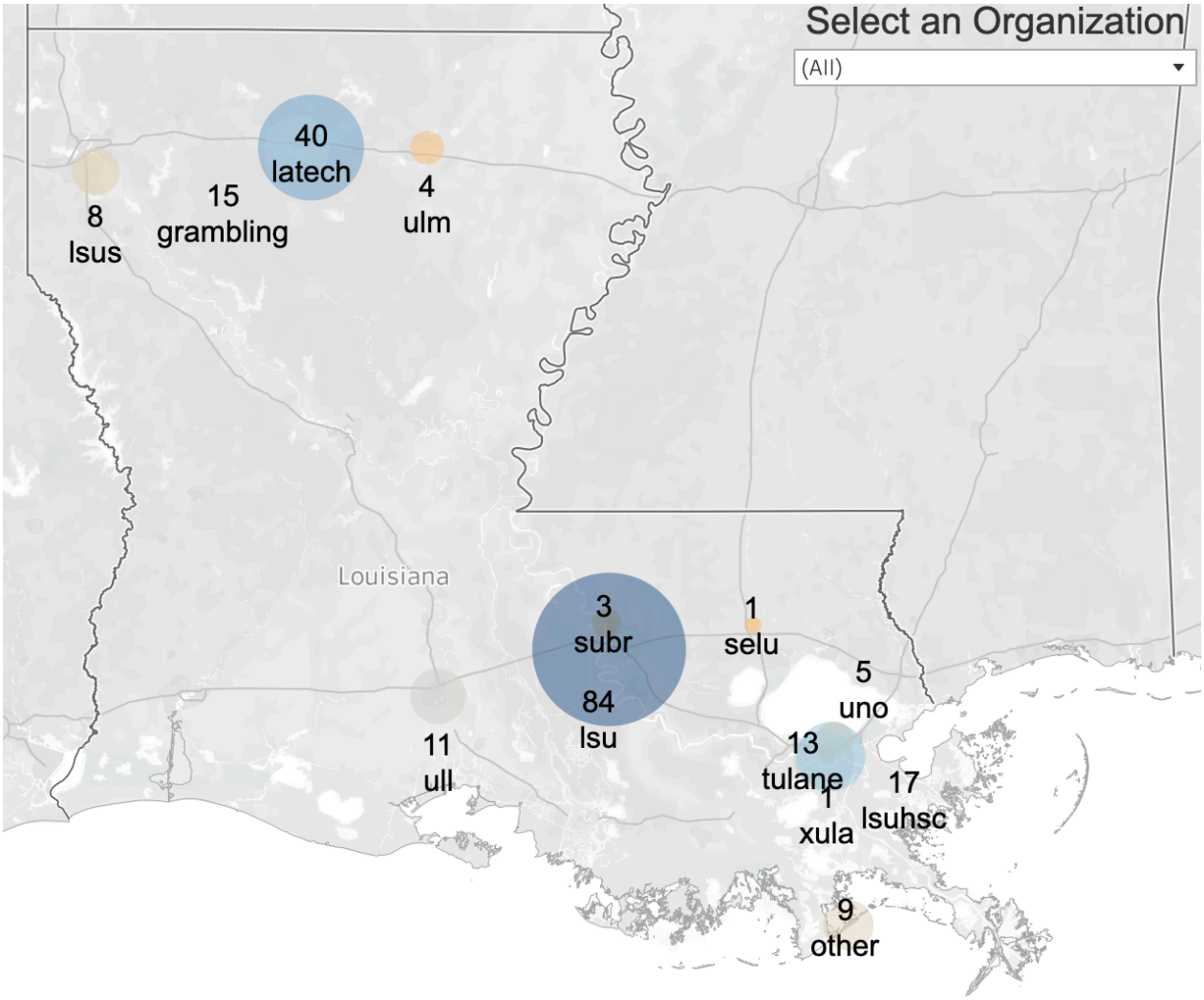
Report: 2021 4th LBRN-LONI Scientific Computing Bootcamp

The 2021 4th LBRN-LONI Scientific Computing Bootcamp was held on May 29 through June 2nd with a record number of over 200 registrations and a virtual format.

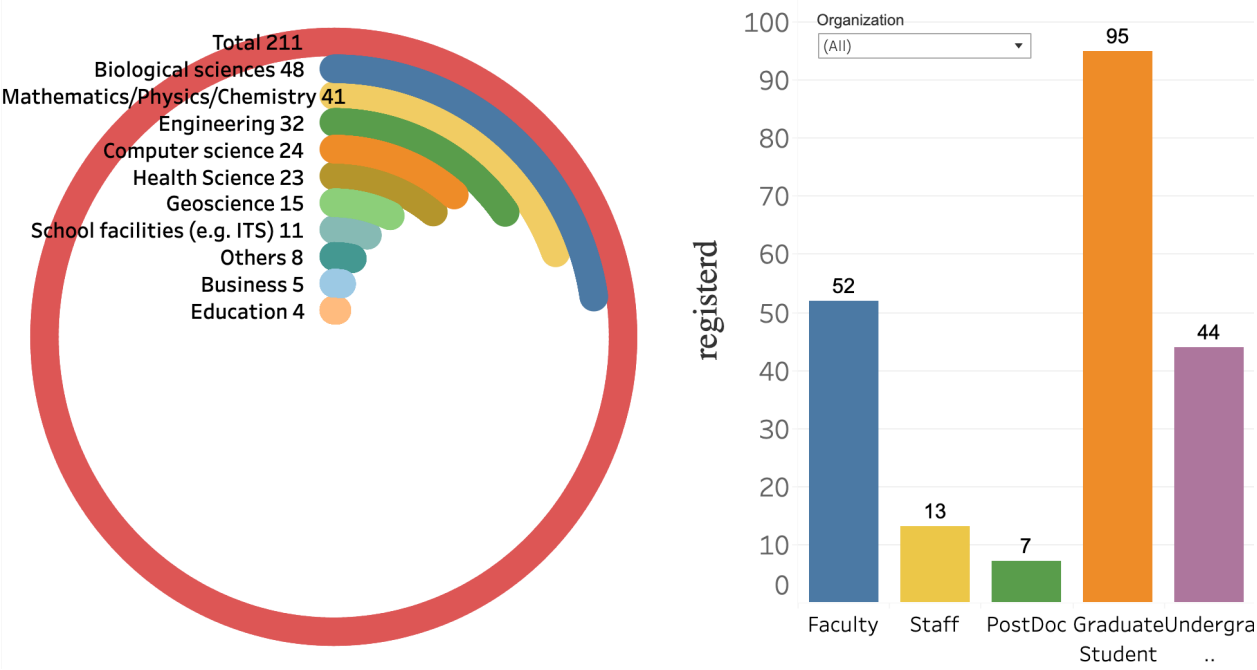
Scientific computing is becoming more ubiquitous for all types of research areas. Skills and knowledge that are necessary to take full advantage of the power of computing, however, are often inadequately present in both curricular and extracurricular training. The purpose of this workshop is, by both presentation and hands-on experiences, to help attendants understand the usage of popular scientific computing programming tools and prepare for their future computational study and research career.

Topics included:

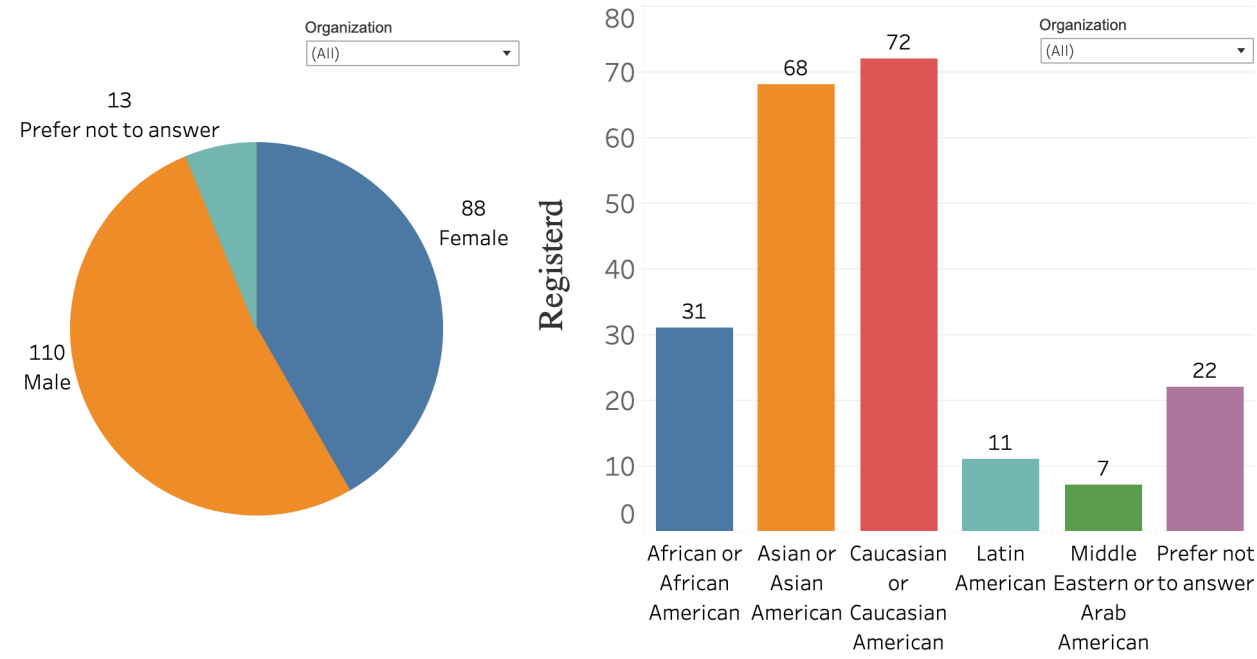
- Introduction to R programming language with its applications in scientific computing
- Introduction to Python programming language with its applications in scientific computing
- Introduction to Deep Learning



Registration by Research Area and Status 2021



Registration by Gender and Race 2021



Recordings available on Program page: https://lbrn.lsu.edu/lbrn-loni-scientific-computing-bootcamp-2021.html

Success Stories of LBRN

- ## LBRN PI Appointment to LOUIS Open Textbooks Pilot Program

The Louisiana Library Network (LOUIS) and the Louisiana Board of Regents are pleased to announce their selection for a $2 million award for the Open Textbooks Pilot Program from the Department of Education. Associate Commissioner and Executive Director for LOUIS, Dr. Teri Oaks Gallaway, who will serve as the Principal Investigator for the grant, explained, “This project engages instructors of dual enrollment across Louisiana in the curation and creation of OER for 25 of the state’s general education courses. Annually these courses have enrollments topping 20,000 for high school students and 250,000 statewide. Not only does this reduce the cost of higher education, but it eliminates an early barrier to participation in post-secondary education”.

The grant will fund LOUIS’ Interactive OER for Dual Enrollment project, which supports the extension of access to high-quality post-secondary opportunities to high school students across Louisiana and beyond. This project, funded by Congress in the 2020 Fiscal Year omnibus spending bill, features a collaboration between educational systems in Louisiana, the library community, Pressbooks technology partner, and workforce representatives. It will enable and enhance the delivery of open educational resources (OER) and interactive quiz and assessment elements for priority dual enrollment courses in Louisiana and nationally. Developed OER course materials will be released under a license that permits their free use, reuse, modification and sharing with others.

Dr. Waneen Dorsey (LBRN PI), Grambling State University, has been appointed to develop CBIO 1033, General Biology I (Science Majors) and CBIO 1034, General Biology I Lecture + Lab (Science Majors) coursework for the grant.

... to see more details

- ## LBRN PI Awarded R01 from NIH

The National Institutes of Health awarded $1.65 million to fund cancer research being done by **Dr. Seetharama Jois (LBRN PI)**, a professor of Medicinal Chemistry at the School of Basic

Pharmaceutical and Toxicological Sciences at the University of Louisiana Monroe College of Pharmacy. The National Cancer Institute of the NIH has issued a notice of award for the project titled "**Molecular mechanism of EGFRs protein-protein interaction inhibition by a grafted peptide in NSCLC**".

The research will be carried out in collaboration with Yong-Yu Liu, M.D., Ph.D., a cancer pharmacologist at the ULM College of Pharmacy, and a lung-cancer researcher from the Mayo Clinic in Minnesota.

Photo from Siddharth Gaulee/ULM Photo Services

Director of the Office of Sponsored Programs and Research of the University of Louisiana Monroe, LaWanna Gilbert-Bell, said, "This is the second R01 awarded by NIH to the University since 2016. This is the highest award possible from the NIH. It reiterates and highlights the profound research being conducted by our distinguished faculty."

... to see more details

- ## Southeastern Biologist Receives NSF grant

Southeastern Louisiana University Assistant Professor of Biological Sciences **Dr. April Wright (LBRN PI)** has been awarded a five-year grant of $1,125,000 by the National Science Foundation to integrate information from the fossil record with data collected from living species to infer phylogenetic relationships.

The grant was one of only two CAREER grants awarded in the state. The National Science Foundation CAREER awards are in support of junior faculty who exemplify the role of teacher-scholars through research and education, and the integration of these endeavors in the context of their organizations' missions.

The project will focus on the use of posterior predictive methods for assessing which models are most appropriate for a particular dataset. The work will provide practical guidance and research software tools for researchers to perform more complex model assessment in systemic biology, Wright said.

“I will be working with statistical methods to integrate fossil data with extant molecular data to estimate dated phylogenetic trees,” said Wright. “Phylogenetic trees are one of our key ways of understanding the evolution of organisms, form, and function. And fossils are often our only direct source of information about past organisms. What we’ll be doing in the lab is evaluating different mathematical models for estimating phylogenetic trees from joint fossil and molecular data.”

... to see more details

- ## LSU Heath Researcher receives $750k NASA grant

Project: Develop a novel single-cell biodosimetry for brain genomic instability and neurodegeneration to predict clinical health outcomes in human spaceflight crews.

The research team includes project investigator, Xiaohong Lu, LSUHSC-S, co-investigators Dr. Lynn Harrison, Professor of Molecular and Cellular Physiology at LSU Health Shreveport; Dr. Jeffery Chancellor, Assistant Professor at LSU Baton Rouge; and **Dr. Urska Cvek (LBRN PI),** Professor at LSU Shreveport.

As NASA plans future exploration missions to the Lunar and Martian surfaces, realistic ground-based analog studies and more predictive biodosimetry are needed to assess whether the space radiation poses a detrimental risk of brain genomic instability and neurodegeneration that leads to late-onset behavioral deterioration for spaceflight crews. Implementing a recently developed

method of recreating the intravehicular (IVA) radiation environment expected on spaceflight vehicles and habitats and a novel genetic sensor, this proposal addresses Research Topic 3 – Animal Biology Studies in support of Human Space Exploration and Sub-topic AB1-A: Behavior and underlying neural function in Appendix D: Solicitation of Proposals for Flight and Ground Space Biology Research. We propose to determine how the space environment and sex affect brain genomic stability and consequent age-related brain structure and function changes. Our studies will support Human Space Exploration, by contributing the first biodosimetry for quantifying brain DNA instability and neurodegenerative changes to predict clinical health outcomes in human spaceflight crews and the utility of available ground-based analogs to realize basic mechanisms that can lead to the development of biologic counter-measures.

... to see more details

- ## BioMorph Lab at Louisiana Tech receives two USAF contracts

Louisiana Tech's BioMorph Lab, directed by professor **Dr. David Mills (LBRN PI)**, recently received a pair of research contracts from the U.S. Air Force that call for the development of an antimicrobial filament for 3D medical device printing and a multifunctional bandage.

The antimicrobial filament is a bioplastic that contains agents to kill bacteria, fungi, and other elements that cause infection. The bandage will be multifunctional because it can be used in combat, at a military hospital, or for civilians. Components of the bandage will be printed.

Dr. David Mills & BioMorph Lab members

This is the first time the BioMorph Lab has received a USAF grant, but the Lab has had Department of Defense funding in the past. The contract is classified as Phase I, which is for 90 days. Mills' major goal is to locate a military medical partner for his Phase II proposal. Specifically, the research contracts are a collaboration between the USAF, Tech's BioMorph lab, and Mills' two

startups, organicNANA and Nano Medicine.

... to see more details

Louisiana Coronavirus (COVID-19) Information

Information from CDC: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html

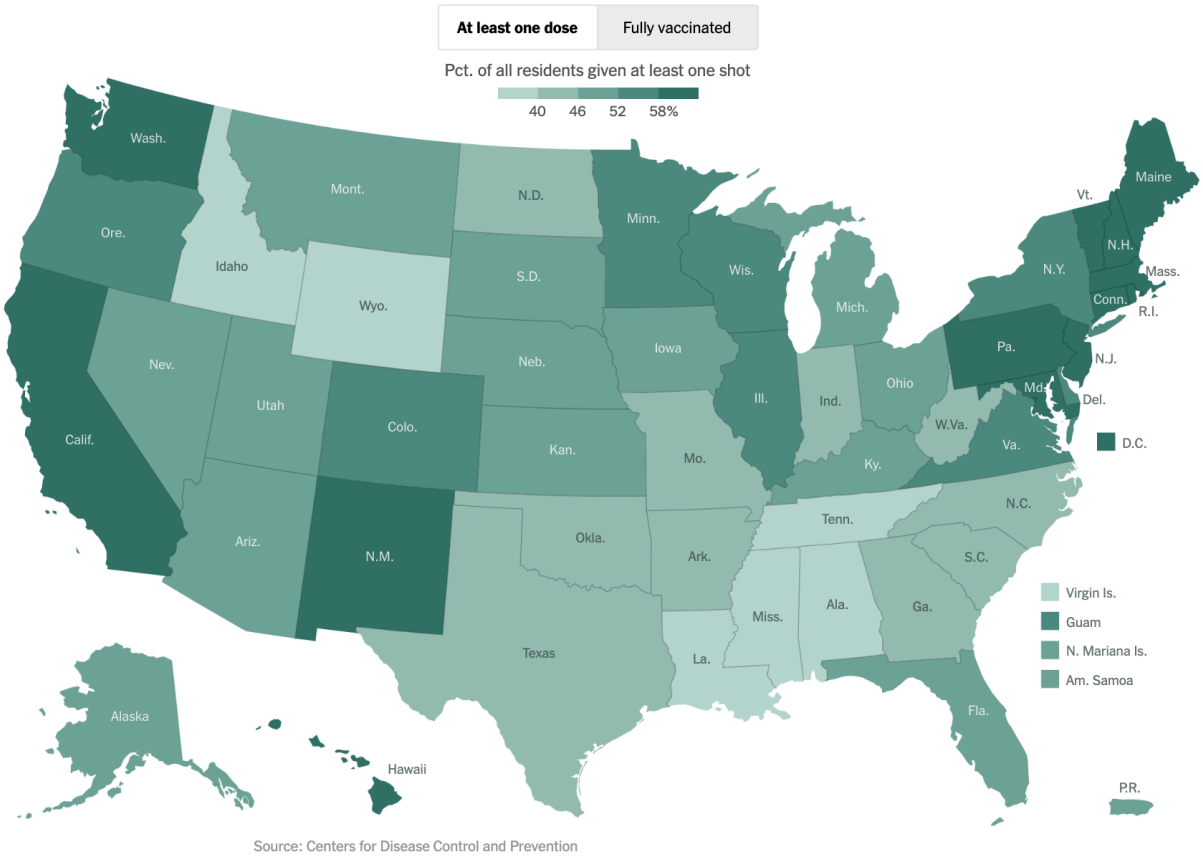
COVID-19 vaccination will help keep you from getting COVID-19

- All COVID-19 vaccines currently available in the United States have been shown to be safe and effective at preventing COVID-19. Learn more about the different COVID-19 vaccines.
- All COVID-19 vaccines that are in development are being carefully evaluated in clinical trials and will be authorized or approved only if they make it substantially less likely you will get COVID-19. Learn more about how federal partners are ensuring COVID-19 vaccines work.
- Based on what we know about vaccines for other diseases and early data from clinical trials, experts believe that getting a COVID-19 vaccine also helps keep you from getting seriously ill even if you do get COVID-19.
- Getting vaccinated yourself may also protect people around you, particularly people at increased risk for severe illness from COVID-19.
- Experts continue to conduct studies to learn more about how COVID-19 vaccination may reduce spread of the virus that causes COVID-19.

COVID-19 Vaccines for Children and Teens

- Although fewer children have been infected with COVID-19 compared to adults, children can be infected with the virus that causes COVID-19, can get sick from COVID-19, and can spread COVID-19 to others. **CDC recommends COVID-19 vaccination for everyone 12 years of age and older to help protect against COVID-19.** Children 12 years of age and older are able to get the Pfizer-BioNTech COVID-19 Vaccine.

Status of Vaccination (percentage)



Source: Centers for Disease Control and Prevention

Name	Percent of people Given at least one shot	Fully vaccinated	Doses delivered	Shots given	Doses used
U.S. total*	**52%**	**43%**	**372,830,865**	**305,687,618**	**82%**
Louisiana	**37%**	32%	3,960,420	3,168,577	80%

We remind everyone of the information provided here on our website: [LBRN COVID-19](#).

NIH Extramural Nexus

National Institutes of Health
Office of Extramural Research

- ## New FDA Tools for Investigators and Clinicians

The FDA recently released two new tools that were developed for investigators and clinicians: 1) [Research IND Pilot Portal](#) and 2) [Expanded Access eRequest](#).

The Research IND (Investigational New Drug) Pilot Portal is a web-based tool for submission of non-eCTD (electronic Common Technical Document) Research INDs. The submission process is streamlined by using dynamic and intuitive questions with targeted links, resources, and CFR guidance. The tool provides user-friendly capabilities such as auto population of Form FDA 1571, reusable data, and a centralized dashboard to track all submissions. Digitizing non-eCTD Research IND submissions into an electronic, structured format will alleviate the amount of PDF/paper submissions FDA receives and thereby increase FDA review efficiency.

Expanded Access eRequest is a web-based tool that enables physicians to complete, sign, and submit non-emergency Expanded Access (EA) requests to FDA. EA eRequest helps physicians determine whether EA is appropriate for their patients, walks physicians through the process of completing Form FDA 3926, and provides useful links and resources. It is hosted by the Reagan-Udall Foundation for FDA and was developed with input from FDA.

- ## All About Grants Podcast: NIH Loan Repayment Programs (Part 1) – An Overview

Now that we have your attention, join us for this first in a two part NIH All About Grants podcast mini-series on the NIH Loan Repayment Programs (LRPs) (MP3 / Transcript). Dr. Ericka Boone, Director of the Division of Loan Repayment within the NIH Office of Extramural Research, discusses the different extramural LRPs available, what exactly is "qualified educational debt" (and, importantly, what it is not), considerations for applying, benefits to participating, and much more.

"We all know that there are immense benefits to receiving the LRP, and one of them being relief from the debt burden of having to pay back student loans at a time where an investigator's at a really vulnerable career decision point. They're at their early stages of their career and they're wondering, do I stay in a career that I love or do I exit out of this career pathway in order to pursue other opportunities that might be more lucrative? And I really love this program, because it really helps to keep people actively engaged." – Ericka Boone

In our second conversation, we dive deeper into the specifics of developing your application. Please also check out the LRP page for eligibility and program information, send questions to LRP@NIH.gov, and follow them at @NIH_LRP.

Have an idea for a future podcast? Email ExtramuralNexus@mail.nih.gov and tell us all about it.

- ## All About Grants Podcast: NIH Loan Repayment

Programs (Part 2) –The Application

The NIH Loan Repayment Program (LRP) conversation is back! And, building on Part 1, this time, we are getting into the nitty gritty of the application itself (MP3 / Transcript). Dr. Ericka Boone, Director of the Division of Loan Repayment is joined by Dr. Roya Kalantari, a program officer focused on LRPs at the National Heart, Lung, and Blood Institute to discuss what you should do when preparing to apply, the various sections of the application, some tips to consider and mistakes to avoid, as well as thoughts on when seeking a renewal.

“Ingrain those [evaluation criteria] in your brain as you’re writing this application and make sure you’re directly addressing each of those concepts…It is sort of this idea of you holistically as a researcher, it’s not just your project. It’s how is this project going to help you achieve your research goals? What is the appropriateness of your previous training? Does it align with what you’re proposing to do now?” – Roya Kalantari

Please do not forget to check out the LRP page for eligibility and program information, send questions to LRP@NIH.gov, and follow them at @NIH_LRP.

- ## Submission and Processing of Federal Financial Reports

If you need to submit a Federal Financial Report (FFR) through the HHS Payment Management System (PMS), then you’ll want to be aware of two recent notices in the NIH Guide for Grants and Contracts.

1. Some recipients have experienced issues submitting timely final FFRs. PMS does not allow recipients to submit reports that do not reconcile expenditure versus quarterly cash transaction data. NIH Final Federal Financial Reports (FFRs) will be converted to Interim Annual Reports in the Payment Management System (NOT-OD-21-138) describes steps taken to address these challenges and delays in reporting and certifying expenditure FFRs.
2. Updated Process for Submission of Federal Financial Reports for Closed Payment Management System Subaccounts (NOT-OD-21-128) provides instructions to NIH recipients who need to submit an FFR for a closed subaccount in PMS.

- ## An Updated Look at Applications Submitted During the Pandemic

In a previous post, we looked at the gender distribution of designated principal investigators (PI's) of R01 and Research Project Grant (RPG) applications submitted before and after the onset of the COVID-19 pandemic. Since that time, we have paid close attention to the well-being of the extramural biomedical research workforce, in part through our survey of institutional leaders and scientists. Others have followed preprint postings and publications, finding evidence of the pandemic's disproportionate effects. Here we look at NIH R01 and RPG application patterns for January 1 through April 8 over the past 6 years; these applications patterns may well reflect longer-term pandemic effects.

R01 Equivalent Applications

Table 1 shows the percentage of R01-equivalent applications submitted by men only, women only, and both men and women (as would be possible for multi-PI applications). The overall number of application submissions continues to increase, up 8% compared to last year, just before the pandemic hit. The proportion of applications from men only has declined somewhat, while the proportion of multi-gender applications has increased. The proportion of women-only applications has remained stable.

Table 2 shows corresponding data for race. The proportion of applications coming from Whites only has decreased slightly, while the proportion of mixed applications has increased. Only a small proportion of applications come from under-represented minorities (URM) only.

Table 1: R01-equivalent applications by gender received between January 1 and April 8 in 6 consecutive years

Year	Number	All Men(%)	All Women(%)	Both(%)	Unknown(%)
2016	10835	62.8	24.8	11.1	1.4
2017	10433	61.2	25.5	11.8	1.5
2018	10876	61.1	24.5	12.7	1.8
2019	11184	59.6	25.5	12.8	2.1
2020	10735	57.6	26.3	13.8	2.3
2021	11564	56.3	25.8	15.3	2.6

Table 2: R01-equivalent applications by race received between January 1 and April 8 in 6 consecutive years

Year	Number	White Only(%)	Asian Only(%)	Mixed(%)	More Than One(%)	Unknown Only(%)	URM Only(%)
2016	10835	57.6	23.5	11.1	0.8	5.6	1.4
2017	10433	56.7	23.7	11.9	0.9	5.4	1.4
2018	10876	55.5	23.4	12.9	0.9	5.7	1.5
2019	11184	54.4	23.8	13	0.8	6.2	1.7
2020	10735	54.5	23.5	13.6	0.8	6.1	1.4
2021	11564	51.2	23.9	16.1	0.9	6.2	1.8

... Continue reading to learn more

• Updated NIH-wide Strategic Plan for COVID-19 Research Now Available

NIH recently released its updated Strategic Plan for COVID-19 Research, available on the NIH COVID-19 website. Responses to a Request for Information helped inform this iteration, building on progress since the 2020 plan. The updated strategic plan highlights progress made in the development of diagnostics, therapeutics, and vaccines, along with developing strategies on how to effectively provide these resources. It also directs NIH-supported research into:

- Investigating and treating the long-term health consequences of COVID-19;
- Understanding and responding to new SARS-CoV-2 variants;
- Understanding and engaging disproportionately impacted populations.

• Updated Biographical Sketch and Other Support Format Pages Available Now and Required January 2022

As announced in March, updated biosketch and other support format pages and instructions are available for use in applications, Just-in-Time (JIT) Reports, and Research Performance Progress Reports (RPPRs). Use of the new format pages is preferred immediately and required for due dates and submissions on or after January 25, 2022 (NOT-OD-21-110). This represents a change

from the original May 25, 2021 requirement date for the updated formats and other support signatures. Applicants and recipients can use this time to align their systems and processes with the new formats and instructions. Failure to follow the appropriate formats on or after January 25, 2022 may cause NIH to withdraw applications from or delay consideration of funding.

Applicants and recipients remain responsible for disclosing all research endeavors regardless of the version of the forms used, including:

- If asked by NIH staff, supporting documentation, which includes copies of contracts, grants or any other agreement specific to senior/key personnel foreign appointments and/or employment with a foreign institution for all foreign activities and resources that are reported in Other Support. If the contracts, grants or other agreements are not in English, recipients must provide translated copies.
- Immediate notification of undisclosed Other Support. When a recipient organization discovers that a PI or other Senior/Key personnel on an active NIH grant failed to disclose Other Support information outside of Just-in-Time or the RPPR, as applicable, the recipient must submit updated Other Support to the Grants Management Specialist named in the Notice of Award as soon as it becomes known.

See our Biosketch and Other Support pages for additional information.

CFA for Short Term Core Projects

Molecular Cell Biology Research Resources Core (**MCBRC**) and Bioinformatics, Biostatistics, and Computational Biology Core (**BBCC**) are calling for proposals to carry out short term projects in collaboration with the Cores. All LBRN researchers can submit a proposal for a defined project that can be carried out in collaboration with the Core facilities listed in the attached Call for Proposals (CFP) on a competitive basis. Each selected project will be allocated $1,500 to fully or partially offset Core expenses. Please contact your LBRN Steering Committee Member.

LONI HPC Allocation for LBRN

To support the LBRN / BBC Core community on LONI HPC systems, we have renewed our high-performance computing allocation for 2020/2021.

This can be utilized in lieu of individual investigators having to apply for and acquire their own allocations to access the HPC resources. If any of your campus members need access to high performance computing, please have them interface with Dr. Nayong Kim.

NIH LBRN Acknowledgement

So that we can most effectively communicate the scope and results of our funding support, we would like to know when you are planning news announcements about IDeA awards or program activities and achievements…

When you produce such material, please be sure to identify the IDeA program, not just the INBRE, COBRE or sub-program, and to provide context about the program's goals along the lines of:

The University of _____ has received $XXX from the National Institutes of Health (NIH) to support an Institutional Development Award (IDeA) Center of Biomedical Research Excellence. The IDeA program builds research capacities in states that historically have had low levels of NIH funding by supporting basic, clinical and translational research; faculty development; and infrastructure improvements.

In journal articles, news releases, or other materials about your program's activities or achievements, please use funding acknowledgement language such as:

Research reported in this {publication, release} was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under grant number 5 P20 GM103424-18 and 3 P20 GM103424-15S1.

• In journal articles, oral or poster presentations, news releases, news and feature articles, interviews with reporters and other communications, acknowledge the IDeA program's full or partial support of the research. The citation in scientific publications should use the following format:

Research reported in this publication was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under grant number P20GM12345.

• If you wish to acknowledge NIH/NIGMS funding on your Web site or other communication product, you may use wording such as:

Funded by an Institutional Development Award (IDeA) from the National Institutes of Health.
or
*Funded by the LBRN (*2P20GM103424-19) *an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health.*

Please do not use the NIH or NIGMS logo to acknowledge funding, as these logos are only to be used for material produced by NIH and its components.
