Pre-application Webinar

Cloud-based Learning Modules

NOSI Supplement (NOT-GM-22-004)

December 9, 2021
2:00 – 3:30 PM
# Agenda

<table>
<thead>
<tr>
<th>Welcome Remarks</th>
<th>Krishan Arora, Ph.D., Branch Chief, Networks and Development Programs Branch (NDP) Division for Research Capacity Building (DRCB), NIGMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Description</td>
<td>Lakshmi Kumar Matukumallli, Ph.D., Program Director, NDP, DRCB, NIGMS</td>
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<td>Q&amp;A via Chat Window</td>
<td>Moderator: Ming Lei, Ph.D., Director, DRCB • Alison Gammie, Ph.D., Director, TWD • Lakshmi Kumar Matukumallli • Christy Leake</td>
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</tbody>
</table>

Application Deadline: January 28, 2022. 5 PM local time.
Disclaimer

The webinar and accompanying slides serve as an overview of the NOSI administrative supplement funding opportunity NOT-GM-22-004. They are not meant to be comprehensive in coverage of all required components of an application. 

Applicants are responsible for following the instructions in the NOSI and any related Notices included in the NOSI.
Cloud-Computing: Opportunities and Barriers

- Provides end users access to (big) data, high performance computation, and storage space without heavy infrastructure investment
- A potential game changer for students and investigators at under-resourced institutions

However

- Students in biosciences have limited access to cloud-based learning
- Most biomedical researchers have yet to master cloud-based research tools/methods
NIGMS Pilots: Developing Tools that Enable Cloud-Based Learning

Objectives

- Accessible by all students interested in biomedical research
- Interactive and suitable for self-learning
- Providing students skills in biomedical research including those using data science approaches such as AI/ML/DL
- Providing faculty investigators programming skills to use Cloud infrastructure (Train-the-Trainer)

Approaches

- Invited two GM-funded investigator groups with expertise on teaching methods in genomics and proteomics research, respectively
- Paired each group with a team of engineers from Google through NIH STRIDES
- The investigators, guided by the Google engineers, converting their teaching materials to cloud-based learning modules
Train-the-Trainer:
GM-supported investigators gained programming skills to develop similar packages, help establish their institutions’ Cloud accounts, and join NIH STRIDES.
NIGMS Biomed Research Learning Sandbox

Basics of Cloud Computing (Google / Amazon)

Proteomics Analysis Workflow
Univ of Arkansas Med Sci

RNA-Seq Analysis Workflow
Univ of Maine, MDIBL

By STRIDES

By NIGMS Pilots

New learning Modules

1  2  3  4  5

Examples: Image Analysis, Metagenomics, Metabolomics, Neuroscience, Single cell –omics, Microscopy, Variant Analysis, GWAS, Phylogeny ...

NIH National Institute of General Medical Sciences
Development of New Modules

Project leads should have experience in programming, in addition to expertise of the subject matter.

Project leads will work with cloud software engineers arranged by NIGMS to develop learning modules. **No need to describe the technical specifics about the development in the application.**
Objective: Convert biomedical research training materials into cloud based **self-learning** modules

Significance: Module topic is unique and non-duplicative

Description: Background, Data processing and analysis steps, software programs, and workflows.

Module Development: Describe self-learning module development containing instructional videos, demos, and practicum exercises

Module Dissemination: Plan to include this and other modules from NIGMS Sandbox into the teaching curriculum
Eligibility

- IDeA Networks for Biomedical Research Excellence (INBRE)
- Native American Research Centers for Health (NARCH) awards
- NIGMS R25 or training (T34, T32) award
  - NIH research project grant (RPG) funding less than $7.5 million total costs per year over the past 3 fiscal years; RPG data are available through NIH RePORTER.
- One supplement request per active award
Budget – Administrative Supplement

• The requested length of award may not exceed one year.
• 6 person-months of salary support for the project leads.
• NIGMS will coordinate with STRIDES / Cloud Service Provider for
  • Project lead cloud training and support (train-the-trainer)
  • Cloud account set up and cloud credits
  • Deployment of the module in the sandbox
Questions?
Please post them in the Chat box