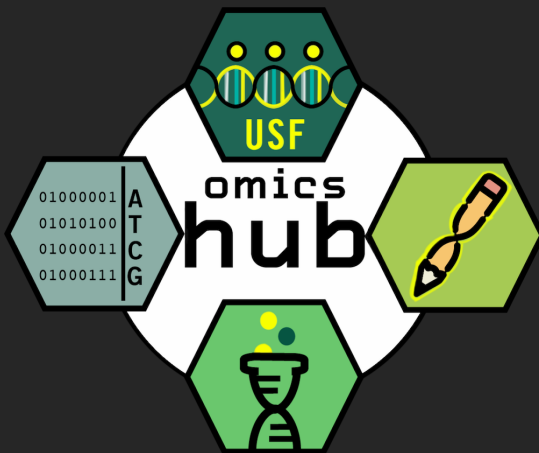


# An introduction to codeathons

Jenna Oberstaller, PhD

Interdisciplinary Sciences Liaison, USF  
Genomics Program

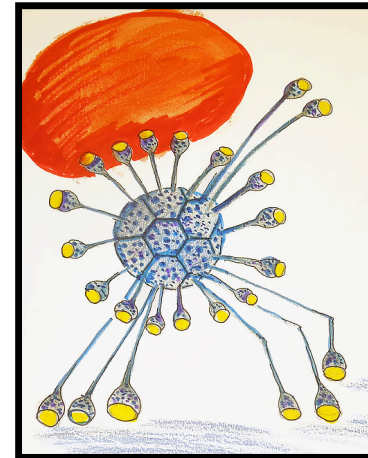
Managing Consultant, USF Omics Hub



UNIVERSITY OF  
SOUTH FLORIDA

## ONE HEALTH Codeathon

February 24-26, 2021 | Virtual Event



**Collaborative coding in  
the time of COVID:**

*Harnessing data  
sciences against pandemics*

**Sponsored by the USF Genomics Program**

**In partnership with the Global Virus Network**



Codeathon goals



```
graph TD; A[Codeathon goals] --> B[Who should participate?]; B --> C[Tips/Strategies]; C --> D[Logistics];
```

Who should participate?

Tips/Strategies

Logistics

Roadmap

# What is a codeathon?

- An intensive, fixed-duration event where people come together to creatively solve problems.
  - TEAM-based
    - DIVERSE skillsets
    - All career-stages
    - ~6 per team
  - End product could be
    - an app
    - a pipeline
    - an analysis

# Guiding principles

- Strengthen our USF Research community and partnerships
- Be welcoming to newcomers
- Provide an opportunity for participants to learn something new
- Provide a space and time for CROSS-DISCIPLINARY collaboration to solve applied problems of community interest

Don't expect to have actually solved a problem by the end of the hackathon. Real life problems are hard! Think of the hackathon as a pit-stop on a long journey to solve problems or as a training session to prepare participants for solving problems.

# Previous event products



Oberstaller et al. 2020:

F1000Research



SOFTWARE TOOL ARTICLE

## Uncovering host-microbiome interactions in global systems with collaborative programming: a novel approach integrating social and data sciences [version 1; peer review: awaiting peer review]

Jenna Oberstaller<sup>1</sup>, Swamy Rakesh Adapa<sup>1</sup>, Guy W. Dayhoff II<sup>1</sup>, Justin Gibbons<sup>1</sup>, Thomas E. Keller<sup>1</sup>, Chang Li<sup>1</sup>, Jean Lim <sup>1</sup>, Minh Pham <sup>1</sup>, Anujit Sarkar<sup>1</sup>, Ravi Sharma<sup>1</sup>, Agaz H. Wani<sup>1</sup>, Andrea Vianello <sup>1</sup>, Linh M. Duong<sup>1</sup>, Chengqi Wang<sup>1</sup>, Celine Grace F. Atkinson<sup>1</sup>, Madeleine Barrow<sup>1</sup>, Nathan W. Van Bibber<sup>1</sup>, Jan Dahrendorff<sup>1</sup>, David A. E. Dean<sup>1</sup>, Omkar Dokur<sup>1</sup>, Gloria C. Ferreira<sup>1</sup>, Mitchell Hastings<sup>1</sup>, Gregory S. Herbert <sup>1</sup>, Khandaker Tasnim Huq<sup>1</sup>, Youngchul Kim<sup>1,2</sup>, Xiangyun Liao<sup>3</sup>, XiaoMing Liu<sup>1</sup>, Fahad Mansuri<sup>1</sup>, Lynn B. Martin<sup>1</sup>, Elizabeth M. Miller <sup>1</sup>, Ojas Natarajan <sup>1</sup>, Jinyong Pang<sup>1</sup>, Francesca Prieto<sup>1</sup>, Peter W. Radulovic<sup>1</sup>, Vyoma Sheth<sup>1</sup>, Matthew Sumpter <sup>1</sup>, Desirae Sutherland<sup>1</sup>, Nisha Vijayakumar<sup>1</sup>,  Rays H. Y. Jiang<sup>1</sup>

 Author details

<https://f1000research.com/articles/9-1478>




Ferreira et al. 2019:

F1000Research



SOFTWARE TOOL ARTICLE

## Iron Hack - A symposium/hackathon focused on porphyrias, Friedreich's ataxia, and other rare iron-related diseases [version 1; peer review: 2 approved]

Gloria C. Ferreira<sup>1\*</sup>, Jenna Oberstaller<sup>2\*</sup>, Renée Fonseca<sup>3\*</sup>, Thomas E. Keller<sup>4\*</sup>, Swamy Rakesh Adapa<sup>2\*</sup>, Justin Gibbons<sup>3\*</sup>, Chengqi Wang<sup>2\*</sup>, Xiaoming Liu<sup>2\*</sup>, Chang Li<sup>2\*</sup>, Minh Pham<sup>5\*</sup>, Guy W. Dayhoff II<sup>6\*</sup>, Linh M. Duong<sup>7,8</sup>, Luis Tañón Reyes<sup>9</sup>, Luciano Enrique Laratelli<sup>6</sup>, Douglas Franz<sup>6</sup>, Segun Fatumo<sup>10</sup>, ATM Golam Bari<sup>11</sup>, Audrey Freischel<sup>8</sup>, Lindsey Fiedler<sup>7</sup>, Omkar Dokur<sup>11</sup>, Krishna Sharma<sup>12</sup>, Deborah Cragun<sup>2</sup>,  Ben Busby<sup>13\*</sup>,  Rays H.Y. Jiang <sup>2\*</sup>

\* Equal contributors

 Author details

<https://f1000research.com/articles/8-1135>

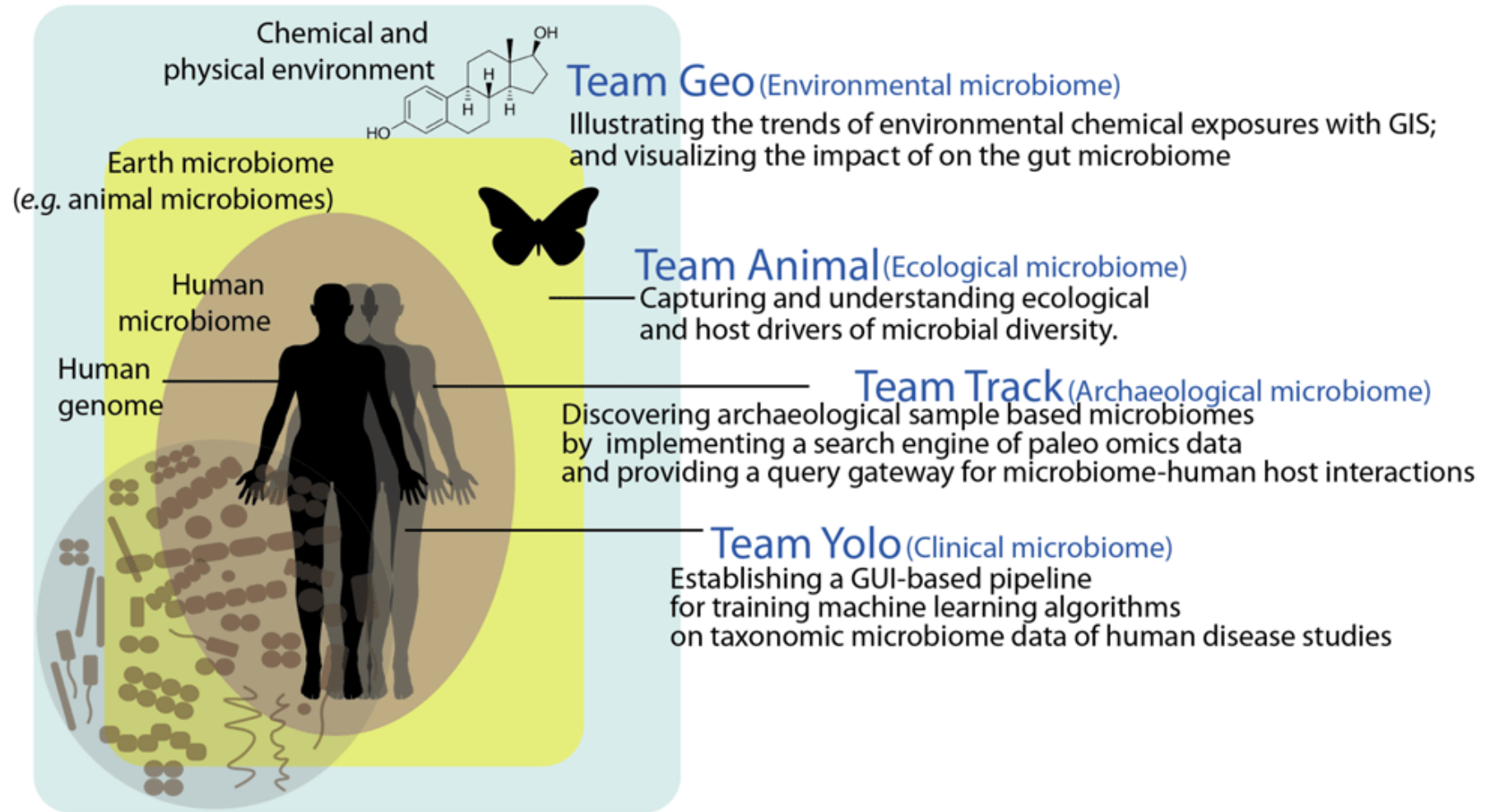
# Previous event products

## Team Microbiome PowerPlus (Microbiome project design)

Providing an intuitive power- and effect-size calculator-tool for project design

## Team Zero (Microbiome visualization and analysis)

Creating a web app to study human gut microbiome variation across geographic regions of the world





# 5 ROLES NEEDED ON EVERY HACKATHON TEAM



Successful hackathon teams are made up of more than just coders. Here are five roles that every hackathon team will need to compete in *GlobalHack*.

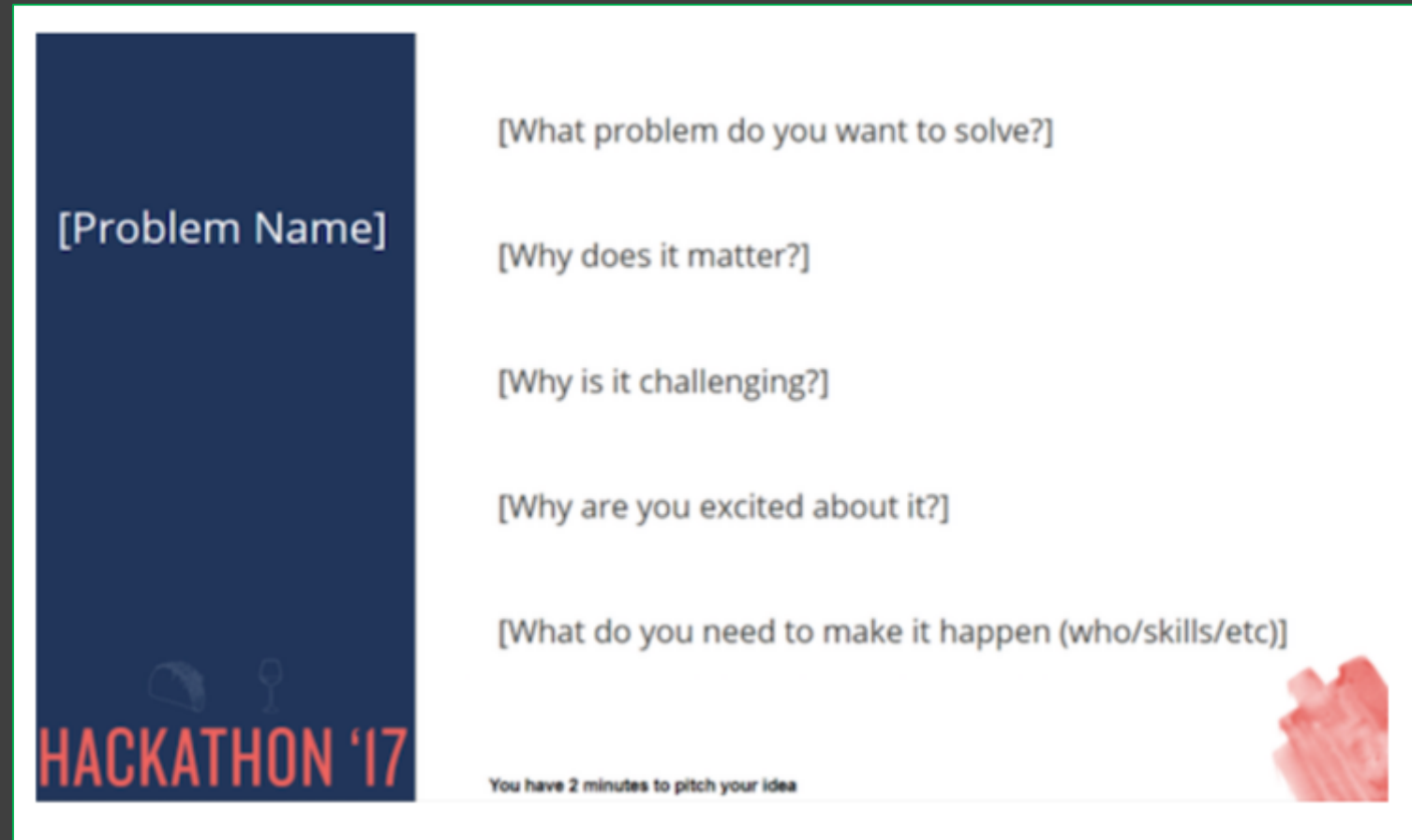
# Priorities

- FRAMING your problem succinctly, powerfully, convincingly
- Delivering a MINIMUM VIABLE PRODUCT
  - Proof of concept
  - Prototype



# KEY QUESTIONS to organize your projects around

STAY ON  
TASK!



[Problem Name]

[What problem do you want to solve?]

[Why does it matter?]

[Why is it challenging?]

[Why are you excited about it?]

[What do you need to make it happen (who/skills/etc)]

HACKATHON '17

You have 2 minutes to pitch your idea

# Before the hack

- Team-leads will schedule pre-meeting with team-members
  - Jenna will provide a template email you can build on
- Team-leads will share a one-sentence description of team project
  - Will not be finalized yet—point of the pre-meeting will be to get team on board, share ownership, strategize
- Team-members should understand team project-objectives and roughly know what they'll be working on
- NO CODING before the hack!

# Day of the hack (EXAMPLE)

**Schedule:** The 3-day codeathon will begin the morning of Wednesday, February 26<sup>th</sup> with a series of talks regarding the event, its purpose, and the significance of the problems being investigated. Teams will initiate work on their projects Wednesday afternoon and will have the entirety of Thursday along with Friday morning to complete their work. Each team will present their work Friday morning and an award will be given based on the evaluations of an external review panel.

## Feb 26<sup>th</sup>

9:00 – 9:30 am  
Coffee & registration

9:30 – 10:00 am  
Presentation by Elizabeth Miller on evolutionary and anthropological dimensions of microbiomes

10:00 – 10:30 am  
Presentation by Ren Tao on Geo Datasience

10:30 – 11:15 am  
Coffee break and team get-together

11:15 am – 12:00 pm  
Team meet-up

12:00 – 1:00 pm  
Lunch

1:00 – 4:00 pm  
Codeathon

4:00 – 4:30 pm  
Day one round up

4:30 pm (optional)  
Additional coding time

## Feb 27<sup>th</sup>

9:00 am – 11:00 am  
Codeathon

11:00 am – 12:00 pm  
Team briefing

12:00 – 1:00 pm  
Lunch

1:00 – 4:00 pm  
Codeathon

4:00 – 4:30 pm  
Day two round up

4:30 pm (optional)  
Additional coding time

Optional Dinner (TBD)

## Feb 28<sup>th</sup>

9:00 am – 11:00 am  
Codeathon

11:00 am – 12:00 pm  
Final presentations

12:00 – 12:15 pm  
Judge Deliberation

12:15 – 12:30 pm  
Awards

- First priority:
  - Make a project flow-chart
  - Review each member's tasks
  - Upload to your team's github repo
- UPDATE throughout the event

The time you quit every day (AFTER 4:30 daily round-up presentations) is up to you

# Progress-checks throughout the event



STAY ON  
TASK!

- Each team will make an initial presentation of their plans/workflow, take questions (5 MINUTES)
- At the end of each coding-day, all teams will give a short update of their progress, priorities for the next day
- Coding can continue indefinitely over the course of the event (OPTIONAL)

# Team communication



STAY ON  
TASK!

- Hub will establish a slack-channel and send invites
- We will be writing a manuscript as we go, IN REAL TIME, via GoogleDocs
  - each team will contribute rationale, methods, results, conclusions
  - DO NOT put this off, or we will not have a manuscript—capitalize on your team's momentum and enthusiasm during the hack.
- [GitHub](#)
  - All teams will have their own repositories which the Hub will initialize before the event

- POSSIBLE TEAM PROJECTS for 2021:
  - <https://usfomicshub.github.io/Codeathon/Codeathon2021/>
- Data-sources overview (Swamy)
- Other logistical misc:
  - computational resources
  - team leads
  - team sizes
  - requirements

# Important dates

- Codeathon Registration-Deadline: **Friday, Feb 5<sup>th</sup>**
- Team assignments will be made by: **Friday, Feb 12<sup>th</sup>**
- First team-leads meeting: **Monday, Feb 15<sup>th</sup>**
- Individual team pre-hack meetings: **Tuesday, Feb 16<sup>th</sup> to Tuesday, Feb 23<sup>rd</sup>**
- CODEATHON: **Wednesday, Feb 24<sup>th</sup> – Friday, Feb 26<sup>th</sup>**
- First manuscript meeting: **Friday, March 5<sup>th</sup>**
  - weekly meetings until manuscript-submission. Target submission: May 7<sup>th</sup>, 2021