
2020 INBRE Summer of Code

WYOMING INBRE BIOINFORMATICS CORE

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9–11AM Weekly

Register by May 22

<https://ibc.uwyo.online/SummerCode>

May 11, 2020

Dear Colleagues,

This is shaping up to be a unique summer. In-person classes have been canceled, lab/field research has slowed down and most regional and national level conferences are on hold presenting unique learning challenges. But perhaps this also presents an opportunity to virtually connect with the larger Wyoming research and education community and invest the summer in developing our informatics skills.

Welcome to the **INBRE Summer of Code**, a weekly virtual session of tutorials, discussions and invited guest talks on topics of general interest. We propose to meet once a week for 2 hours (9AM–11AM) from Memorial day to Labor day (14 sessions). The activities will involve hands-on tutorials, exchanging ideas and knowledge, and invited guest talks, all designed to introduce you to a range of concepts and available tools in statistics, programming, data management and publishing. The overarching goal is to provide enough instruction, information and resources to invigorate and empower participants to delve deeper into the topics they find interesting on their own.

There are two exciting aspects of this project that we would like to highlight. First, we will be bringing in two computational biology experts to speak with us. They might talk about their own work or provide their perspective on contemporary issues in programming and data science. Second, we are reserving the last week of this project to showcase the works of interested participants. This is your opportunity to shine. Ten minute speaking slots will be allotted to anyone who wishes to show us an example of how they have implemented their newly learned skills. This could be a small project such as a course website, a professional website, an R package, a data analysis procedure or anything else you developed during the preceding 13 weeks.

The project is primarily aimed at researchers, educators, other professionals and students in biology. With this initiative we hope to bring together the statewide community including all community colleges and the Laramie and Casper campuses of UW.

Potential Topics

Statistics, Graphics and Programming

- What is your typical R workflow? What best practices have you adopted when working within R environment?
- Base-R graphics *vs* advanced libraries; which one should you choose? Chances are that you will need both.
- Adopting Tidyverse (<https://tidyverse.org>) for your data science needs.
- You can be a developer too! Create your first R Package.

Data Management

- Future proofing your work: From word processors and spreadsheets to plain text files.
- Best practices for efficiently organizing and preserving your data.

Publishing Your Work (and we don't just mean peer reviewed)

- Create functional and elegant documents from plain text with minimal coding. Apply these skills to enhance your term papers, class notes, tutorials, theses, dissertations and essays.
- Automatic bibliographies and table of contents in L^AT_EX.
- Presentations: Moving away from Powerpoint or Keynote and adopting dynamic, web based, lightweight slideshows.

Improve Your Web Presence

- Set up professional and course websites on GitHub and elsewhere.
- Create, share and maintain code repositories (not just for programmers).
- Learn the etiquette for asking questions on scientific discussion forums and maximize your chances of getting an effective answer.

Worth Mentioning

- This is not a workshop in the strict sense. Because our meeting time is so short, we aren't able to help novice participants get up to speed. The expectation is that you use commandline interface and the R environment on a regular basis. If you took one or more of our previous workshops and have continued developing those skills, then you should be set.
- Registration is mandatory as it allows us to track outcomes of our activities. **By registering, you are not committing to attending all sessions.** You may pick and choose the ones that interest you. We will only send zoom links to registered participants.
- By attending one or more sessions, you agree to provide feedback through a survey we plan to conduct. Two surveys will be conducted, at 7 and 14 weeks.
- All sessions will be cast over zoom. Ideally you should have either 2 computers or an external display connected to your computer so that the zoom session can proceed on one screen while your hands on activities will occur on the other screen.
- Online channels will be set up for discussion and Q & A throughout the session. Our volunteers will monitor the channel and provide virtual help. If you are interested in becoming a volunteer and have experience in one or more of the areas covered, please be sure to let us know during registration.
- Detailed instructions for each session will be sent beforehand. On most occasions you will need to do some preparations before the sessions. Materials and instructions will be posted to a GitHub repository. You will also need access to a free GitHub account.

Registration

We encourage you to register **before 22nd of May** so that you may receive all necessary communications on time. It will also allow you to vote on a suitable time slot for the sessions. We will close the registration and voting at 5pm MST that day.

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