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# 2021 INBRE Summer of Code

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WYOMING INBRE DATA SCIENCE CORE

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**8–10AM on Tuesdays**

**Register by May 21**

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

May 11, 2021

Welcome to the **2021 INBRE Summer of Code**, a weekly virtual session of tutorials, discussions and invited guest talks on topics of general interest. Many of you participated in this program last year and picked up skills in reproducible data analysis and publishing. This year's program will build upon those skills and also pick up topics that we were unable to visit due to lack of time.

We propose to meet once a week on Tuesdays for 2 hours (8AM–10AM) from May 25 through August 24 (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.

Similar to last year, we are working on inviting a few data scientists from other institutions. 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 to fifteen 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.

Below is a list of potential topics, many of which we visited last year. This year's offerings will be similar in scope, but they will also cover more advanced concepts.

## 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<sup>A</sup>T<sub>E</sub>X.
- 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 May 21** so that you may receive all necessary communications on time. We will close the registration and voting at 5pm MST that day.

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