Open to HSC postdocs. If you’re based at UPC or a USC affiliate site, please email uscpda@usc.edu for access info.

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“**Cellular, Molecular, and Computational Tools for Insights and Analysis for Stem Cell Research**”

Summary: A discussion-based group that focuses on relevant topics to the research and interests of the center with an applied learning component (programming lab) so that individuals can broaden their understanding and knowledge of intellectual and applied aspects of work discussed. The programming aspect with cover specific tools & analyses every other week. During the “off weeks” (odd numbered weeks) a general introductory to programming series will be held to teach members of the center who desire to gain or strengthen computational skills.

Specific goals:

1. Participants will gain an in-depth understanding on how to read, criticize, and apply knowledge from primary scientific literature.

2. Participants will learn both the intellectual side of the work discussed as well as the applied side through tutorial based lab-sessions.

3. Participants will build and strengthen their computation skills and prowess.

4. To bring the center together for increased scientific discussion and group learning for all faculty, staff, and trainees.

Schedule:

Even Weeks: Wednesdays, 11-12pm (journal club discussion) & 2-4pm (advanced programming lab).

Odd Weeks: Wednesdays 11-12pm (journal club discussion), 2-4pm (intro. programming lab; see below pg. 3).

**Materials needed:**

Note: online versions are free

“Data Visualization with R”, Rob Kabacoff, <https://rkabacoff.github.io/datavis/>

“Hands-On Programming with R”, Garrett Grolemund, <https://rstudio-education.github.io/hopr/>

“R for Data Science”, Hadley Wickham & Garrett Grolemund, <https://r4ds.had.co.nz/>

R <https://www.r-project.org/>

R-Studio <https://rstudio.com/products/rstudio/download/>

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| Date | Week | Topic | Presenter |
| 04/01/2020 | Week 1 | AM: scRNAseq paperPM: Into programming in R week 1 | AM: Nils LindstromPM: Amanda Meyer |
| 04/08/2020 | Week 2 | AM: Good use of SeuratPM: Seurat Tutorial (3 hour session) | AM: Nils LindstromPM: Nils Lindstrom |
| 04/15/2020 | Week 3 | AM: Velocity articlePM: Intro to programming in R week 2 | AM: Nils LindstromPM: Nils Lindstrom |
| 04/22/2020 | Week 4 | AM: Good use of velocityPM: “Velocity of Directed Differentiation” | AM:PM: Tracy Tran |
| 04/29/2020 | Week 5 | AM: STAR PaperPM: Intro to programming in R week 3 | AM: Amanda MeyerAM: Sunghyun KimPM: Amanda Meyer |
| 05/06/2020 | Week 6 | AM: ArticlePM: Download from NCBI, Alignments (STAR) tutorial | AM:PM: Amanda MeyerPM: Sunghyun Kim |
| 05/13/2020 | Week 7 | AM: Cut and Run PaperPM: Intro to programming in R: week 4 | AM: VincentPM: Amanada Meyer |
| 05/20/2020 | Week 8 | AM: Good use of Cut and Run paperPM: Cut and Run tutorial | AM:PM: Vincent |
| 05/27/2020 | Week 9 | AM: Integrating multiple techniques paperPM: Intro to programming in R week 5 | AM:PM: Amanda Meyer |
| 06/03/2020 | Week 10 | AM: Weighted gene networks paperPM: Data Vis. With Ggplot2 | AM:PM: |
| 06/10/2020 | Week 11 | AM: SeqFISH, 10X SpatialPM: Intro to programming in R week 6 | AM: Nils LindstromPM: Amanda Meyer |
| 06/17/2020 | Week 12 | AM: 10X spatialPM: “Visualized ‘Spatial Transcriptomics’ for Your Organoids” tutorial | AM:PM: Nils Lindstrom |
| 06/24/2020 | Week 13 | AM: ArticlePM: Intro to programming in R week 7 | AM:PM: Amanda Meyer |

**Intro to R Sessions**

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| Week | Topic | Text Materials and Problem Sets |
| Week 1 | What is programming? R as a language | “Hands-On Programming with R”, Garrett Grolemund Ch. 2.1-2.7, 3.1-3.4 |
| Week 2 | R Objects | “Hands-On Programming with R”, Garrett Grolemund Ch. 5.1-5.11 |
| Week 3 | R Notation & Modifying Values | “Hands-On Programming with R”, Garrett Grolemund Ch. 6.1-6.5, Ch. 7.01-7.04 |
| Week 4 | R Programs and Loops | “Hands-On Programming with R”, Garrett Grolemund Ch. 9.1-9.6, Ch. 11.1-11.6 |
| Week 5 | R S3, S4, S5 Class Objects | “Hands-On Programming with R”, Garrett Grolemund Ch. 10.1-10.8 |
| Week 6 | R Data Transformation, Tidy, and Factors | “R for Data Science”, Hadley Wickham & Garrett Grolemund Ch. 5.1-5.7, 12.1, 12.2, 12.5, 12.7, 15.1-15.5 |
| Week 7 | R Data Visualization | “R for Data Science”, Hadley Wickham & Garrett Grolemund Ch 3.1-3.10“Data Visualization with R”, Rob KabacoffCh. 2.1-2.3, 3.1-3.2, 10.1-10.8 |

**Purpose of the Research Continuity group:**

The Dean asked a group of people representing each segment of the Keck School of Medicine community to come together to think about continuity of research during the COVID-19 shut-down period, to strategize how to reassure the Keck research community and to make the shut-down period more productive. The initial meeting focused on discussing concerns in each community, engagement across communities, obtaining and dispersing information, with an overall goal to calm, help enable redirection of research without a loss of momentum, and recommend actions that can have temporary and lasting benefit to research in the Keck School of Medicine, and beyond.

If you have any comments or suggestions as to other seminars, workshops, etc that you would like to see to further develop your research career, please email us at uscpda@usc.edu.