

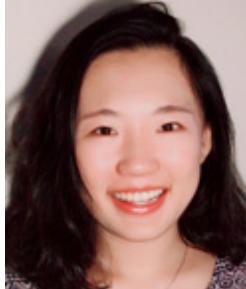
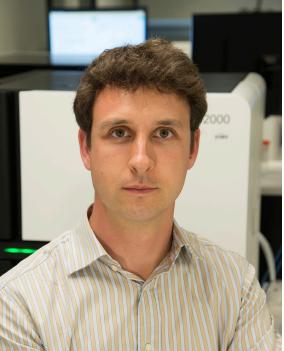


Cold
Spring
Harbor
Laboratory

Advanced Sequencing Technologies & Bioinformatics Analysis (Virtual)

<http://meetings.cshl.edu/courses.html>

Introductions to Washington University instructors



Malachi Griffith

Assistant Professor of Medicine
Assistant Professor of Genetics
Assistant Director, MGI

Obi Griffith

Associate Professor of Medicine
Associate Professor of Genetics
Assistant Director, MGI

Felicia Gomez

Instructor of Medicine

Huiming Xia
PhD candidate

Kelsy Cotto
PhD candidate

Megan Richters
PhD candidate

Allegra Petti

Assistant Professor of Medicine



griffithlab.org

rnabio.org genviz.org pmbio.org

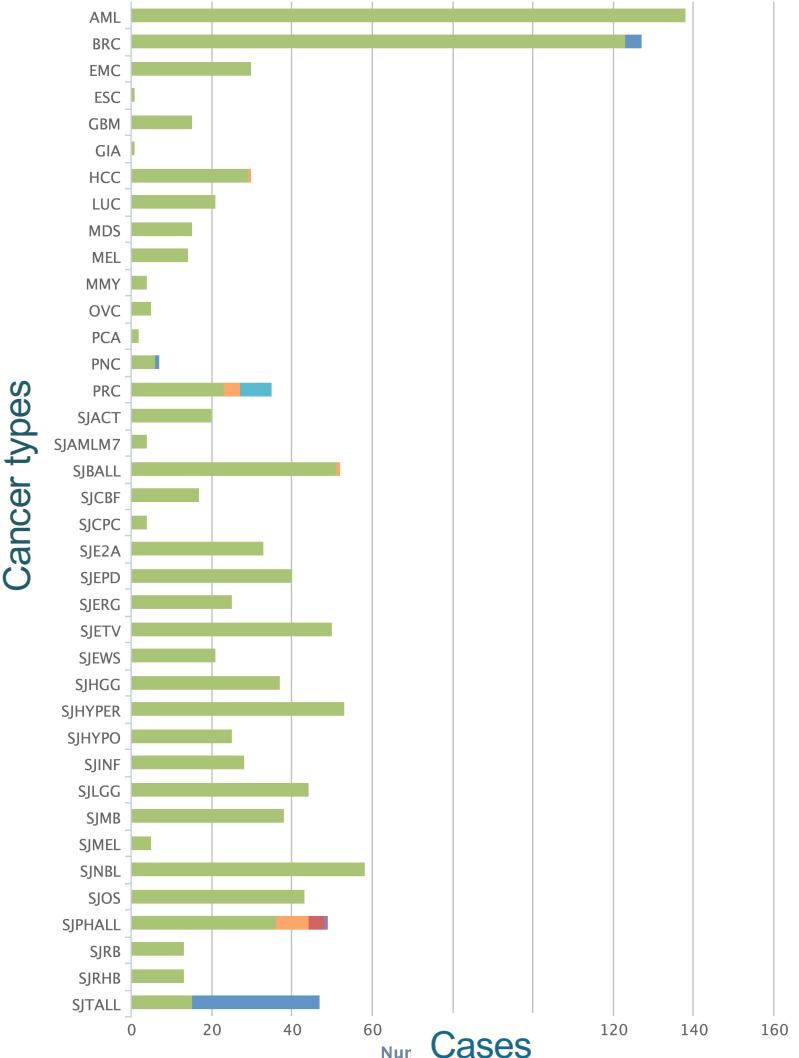


Washington University in St. Louis
SCHOOL OF MEDICINE

PETTI LAB

This will be our first
virtual workshop!

Griffith Lab activities are cancer genomics (informatics) focused: new discovery, translation, method development and training



- **Cancer genome analysis**
 - Lymphoma
 - Breast cancer
 - Mouse models
 - Targeted sequencing of ER+ cohorts
 - Non-coding mutation analyses
 - Small cell lung cancer
 - OSCC
 - ...
- **NGS Technology**
 - Regulome sequencing
 - TCR repertoire sequencing
- **Precision Medicine for Cancer**
 - [Genomics Tumor Board](#)
 - [Immunotherapy](#) (cancer vaccines)
- **Tool development**
 - [RegTools](#) – Regulatory/splicing variant analysis
 - [genVisR](#) – Genome Visualizations in R
 - [DGIdb](#) – drug-gene interactions database
 - [CIVIC](#) – Clinical Interpretation of Variants
 - [pVACtools](#) – Cancer vaccine designs
 - [VAtools](#) – VCF annotation
- **Bioinformatics Training**
 - RNA-seq analysis ([rnabio.org](#))
 - Genomic Data Visualization ([genviz.org](#))
 - Precision Medicine Bioinformatics ([pmbio.org](#))
 - [CSHL](#) and [CBW](#)

www.griffithlab.org

Introduction to SEQTEC Informatics – philosophy and goals

Do “the bioinformatics” for someone, and you help them for a day. Teach someone to do bioinformatics, and you help them for a lifetime.

- Ancient Chinese proverb

- Course goals
 - Learn concepts and develop skills for sequence analysis
 - Build the foundation for tackling your own analysis challenges
 - Learn to think like a bioinformatician
 - Have fun

Course outline

Monday - Introduction to technologies

Tuesday - Bioinformatics basics and NGS data fundamentals

Wednesday - RNAseq expression analysis

Thursday - RNAseq differential expression analysis

Friday - Single cell RNAseq

Course format for a typical day

- Lecture
- BREAK
- Lunch
- Practical exercises
- BREAK
- Practical exercises
- Wrap-up and Q&A

Student poll

Not counting the pre-requisites and materials for this course:

- Do you consider yourself a bioinformatician?
- Are you familiar with linux/command line?
 - Intermediate?
 - Expert?
- Do you sometimes write code?
- Are you familiar with R?
 - Intermediate?
 - Expert?
- Do you use git/github?
- What organism do you work with?
- Are you interested in bulk RNAseq (Yes), scRNAseq (No), or both (hand)?
- Who has a dual monitor setup?

An overview of bioinformatics

Adam Siepel

Professor, Watson School of Biological Sciences; Chair, Simons Center
for Quantitative Biology; Cold Spring Harbor Laboratory

Opinion | [Open Access](#) | Published: 29 July 2019

Challenges in funding and developing genomic software: roots and remedies

[Adam Siepel](#) 

[Genome Biology](#) 20, Article number: 147 (2019) | [Cite this article](#)

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