**Week 1**

Hello all! First, I have to apologize because well before I planned on (got talked into!) teaching this course again, I had previously made plans for the first Thursday of this class.

This means we will *not* be meeting on Thursday, but you're not off the hook!

I've uploaded the [draft syllabus here on TritonEd](https://tritoned.ucsd.edu/bbcswebdav/pid-170138-dt-announcement-rid-17640504_1/xid-17640504_1).

In light of my absence, you’ll need to read two pieces:

Next week, read the short "reading critically" piece

read the paper by [Bullock](https://tritoned.ucsd.edu/bbcswebdav/pid-170138-dt-announcement-rid-17640515_1/xid-17640515_1) so you can flush away all the ridiculously simplistic nonsense you learned about neuroscience as an undergrad.

Additionally, this class will require you to analyze some EEG/MEG/ECOG/LFP data in Python, so install Python (or a new environment) on your computer following the [Tutorials we put together for my Data Science class](https://github.com/COGS108/Tutorials), at least up to section 04-ScientificPython.

I'll send out some more info over the course of the week.

See you all *next* Wednesday, Oct. 10! Be prepared with a laptop with Python running, and having read the Bullock paper.

**Week 2**

I've posted week 2 materials to TritonEd, but I realize some don't have access, so I'll simply share messages via email.

Today was a *lot* of info and terms and, I recognize for many of you, some of those terms may not mean anything to you yet. I try to define myself as I go, but if I throw terms around that you're not familiar with ("stochastic"), either ask me directly, or keep notes and ask me later via email or office hours.

By the way, my office hours are Tuesdays, 9:30-10:30a in my HDSI office, SDSC 213E. I've attached the updated syllabus reflecting this.

Next week, read the short "reading critically" piece, as well as the *much* longer but ridiculously useful Buzsáki, Anastassiou, and Koch piece. Both attached.

Each of you need to send me two critical questions regarding the reading, but Monday, Oct 15, midnight. And by *critical* I don't mean "criticism", I mean active analysis.

I've also attached today's slides.

From here on out, class begins at 9:10a, and I'll give an overview/presentation/ramble, then we'll discuss the reading, and then we'll analyze some data!

If you don't have your own LFP, EEG, MEG, ECOG, iEEG data to analyze, we've compiled a ton of open and freely-available data sources [here](https://github.com/voytekresearch/OpenData). Download some data and come prepared with Jupyter and data!

Hang in there and bear with me. You'll learn a lot this quarter.

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**Week 3**

Next week, read the attached, short, much-easier-than-last-week's paper by Roy Mukamel and colleagues (our own Eran Mukamel's cousin!)

Each of you need to send me two critical questions regarding the reading, but Monday, Oct 22, midnight. And by *critical* I still don't mean "criticism", I mean active analysis.

This next week, we'll begin at 9:10a with data analysis/playing *first*. Then move on to discussion and slides.

For those of you who did *not* have your own data, email me as soon as possible! I'll help you prepare for next week.

And if anyone had issues with getting stuff installed on a Windows system, a student sent me the below that they said worked (*caveat emptor*):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

cd anaconda3

cd scripts

.\pip install fooof

.\pip install bycycle

.\pip install neurodsp

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**Week 4**

For next week, read the attached review and, as always, send me two critical questions regarding the reading, but Monday, Oct 29, midnight.

This next week, we'll begin at 9:10a again with data analysis/playing *first*. Then move on to discussion and slides.

For those of you who did *not* have your own data, you can download the one channel of ECoG data I mentioned in class from [here](https://www.dropbox.com/s/kw5pzpg4cji1a7k/ecog_data.mat?dl=0).

[Here](https://www.dspguide.com/) is the free Digital Signal Processing book I recommended. Well worth digging in to. And [here](https://jackschaedler.github.io/circles-sines-signals) is the great interactive site that explains DSP visually.

Finally, the jupyter notebook will be up [here](https://github.com/voytekresearch/COGS280) shortly.

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**Week 5**

Great class today, everyone!

I've attached the paper by my incoming post-doc, Natalie Schaworonkow, that shows how power-law dynamics can result in spurious correlations.

I'm also attached the Xiao-Jing Wang *mega*review regarding the physiology of oscillations, as well as the Buzsaki and Wang review of the mechanism of gamma oscillations.

In addition, I'm attached, per your request, the slide deck from my "we're analyzing neural oscillations wrong" talk.

Your homework for this coming week is to read the attached Cole and Voytek 2017 review on the nonsinusoidality of oscillations, and submit questions, before next week's class.

Finally, [here](https://voytekresearch.github.io/tutorials/00-Introduction) are *all* the tutorials for basic digital signal processing we've put together, [here](https://voytekresearch.github.io/neurodsp/auto_tutorials/index.html) are some more, and [here](https://voytekresearch.github.io/bycycle/auto_tutorials/index.html) are intro tutorials for nonsinusoidal analyses.

Happy holidays everyone!

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**Week 6**

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**Week 7**

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**Week 8**

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**Week 9**

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**Week 10**

Hello all!

For tomorrow, please do arrive, and arrive with data! We'll be spending the whole session going over the last of the general methods.

Again, due to the funky nature of this quarter, we sadly did not get *nearly* as far as I was hoping, so I want to emphasize that I have an open door policy. I'm on sabbatical in the Winter, but I will be around. So if you want one-on-one assistance in using any of the tools the lab's built, I will be happy to meet.

In addition, we will be finishing more step-by-step tutorials for people to see how to go from run data to fully analyzed statistical results using the labs' methods. Once these are finished, I will send them out to this list.

Cheers and looking forward to all your smiling faces!

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