#flo #inclass

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1 | **quantum!**

- less of a technologist, even tho is about to teach enginerring. actully sounds pretty fun
- engineer in name!
- quantum phys has told us a lot
  - designed in 2014
  - back then, it was mostly about phys, and the new views that were just emerging
- at heart a mathematician
  - quanutm is inspritation to do intresting math
- quantum is part of popular culture
- philophically:
  - we could be living through a period of time where the social gestalt? is changing
- rocket science! no longer that prestigious, lots of people are doing it now
- fields go from mysterious -> common
- quantum is travering this spectrum, but is still shrouded in mystery
- learning and meaning is created **through** doing
- **cetegorical** questions

1.1 | **starting the content (wait..)**

- wave mechanics,
- matrix mechanics!

example of a pardigm shift: wave-particle duality was already discovered wanted to frame quantum in the same framework as classical mechanics, as they were viewed as successful

hamiltonian mechanics operated in 6n dimensions?

linear algebra comes out of computationally minded mathematicians w/o computing tools!

- the thing that quantum is actully about is:
  - finite dim vector
  - that is complex valued

”like a metaphor” abstract math

multiple fields, one abstract and one not? wave mechanics were the one that was taught, which is not what we teach now! instead, we do matrix mechanics! this is because of quantum computing - study of linalg has overtaken study of diff eq. - all computing is based on linalg - under everything is linear algebra! everything in computing boils down to manipulating matrices

- everything was geometric
- then it was all algebraic
- in the last 30 years, we are living through another revolution
  - now we are doing it algorithmically all about language shift, as they are the medium that allow for expression and therefore exploration this is what KBxSystemsofSystemsinNatureandDeepLearning#category theory is talking about

1.2 | **class overview**

- four modules, each of four weeks
  - designed around the breaks we have
- we get the rest later

1.3 | **the first thing!**

by the end of next week.