

Geographic Data Science

Introduction

Dani Arribas-Bel

This course

(Self-)Quiz

- Have you ever used **data** to make decisions in your life?
- Have you ever heard the term “**Data Science**”?
- Have you ever written a line of **computer code**?

*More stats than a GIS course... more
GIS than a stats course*

With a few twists!

Philosophy

- (Lots of) methods and techniques
 - General overview
 - Intuition
 - Very little math
 - Lots of ways to continue on your own
- Emphasis on the application and use
- Close connection to “real world” applications

Format

11 blocks with:

- **Concepts:** videos + slides, readings
- **Hands-on:** concepts in (interactive) action
- **Do-It-Yourself:** practical material to do on your own

Content

- **Blocks A–C:** “big picture” content + computational tools (learning curve)
- **Blocks D–H:** “meat” of the course (lots of concepts packed)
- **Blocks I–K:** prepare an awesome Computational Essay

Logistics – Website

https://darribas.org/gds_course



ENVS363/563

Geographic Data Science

Welcome to Geographic Data Science, a course taught by Dr. Dani Arribas-Bel in the Autumn of 2020 at the University of Liverpool.

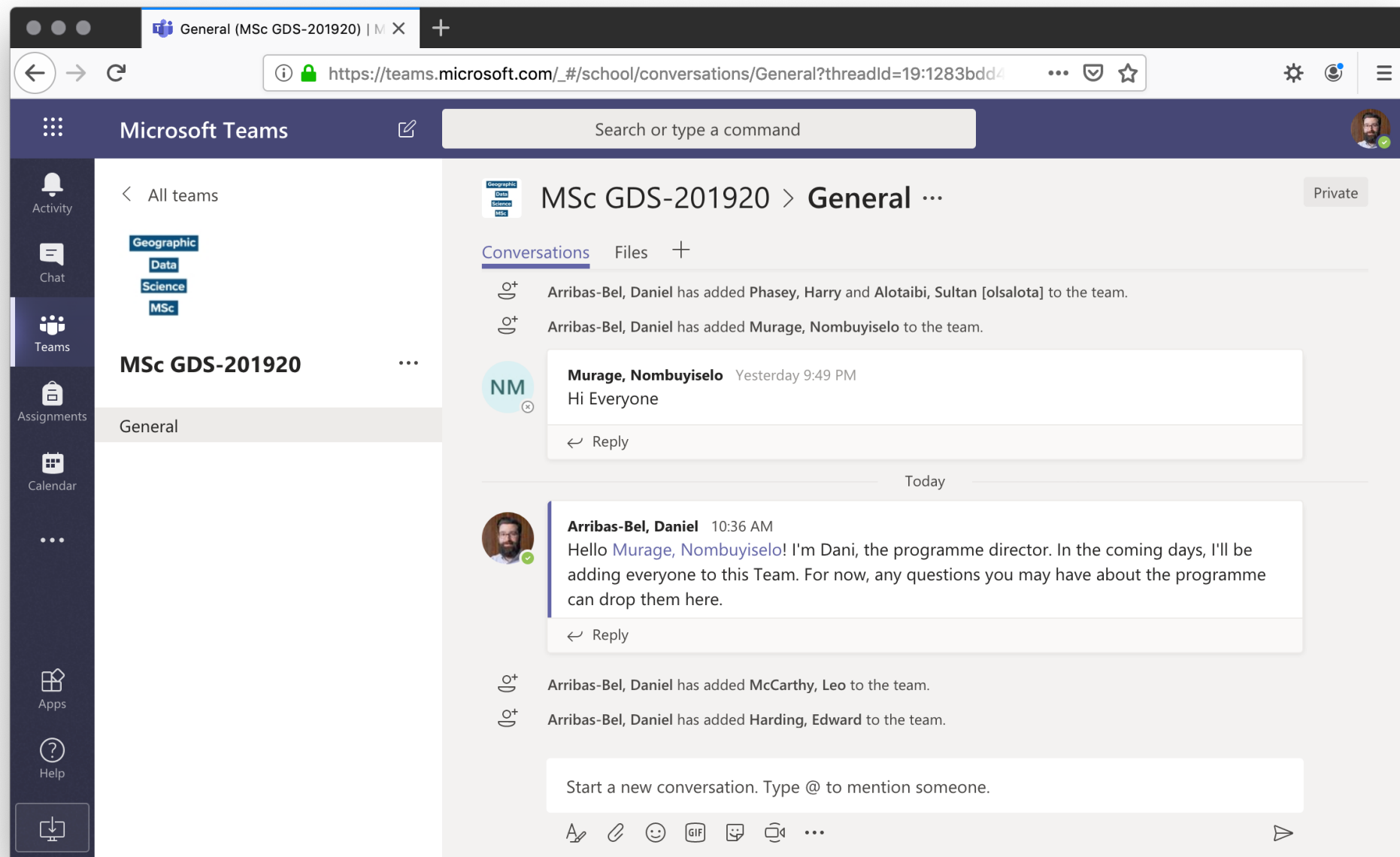
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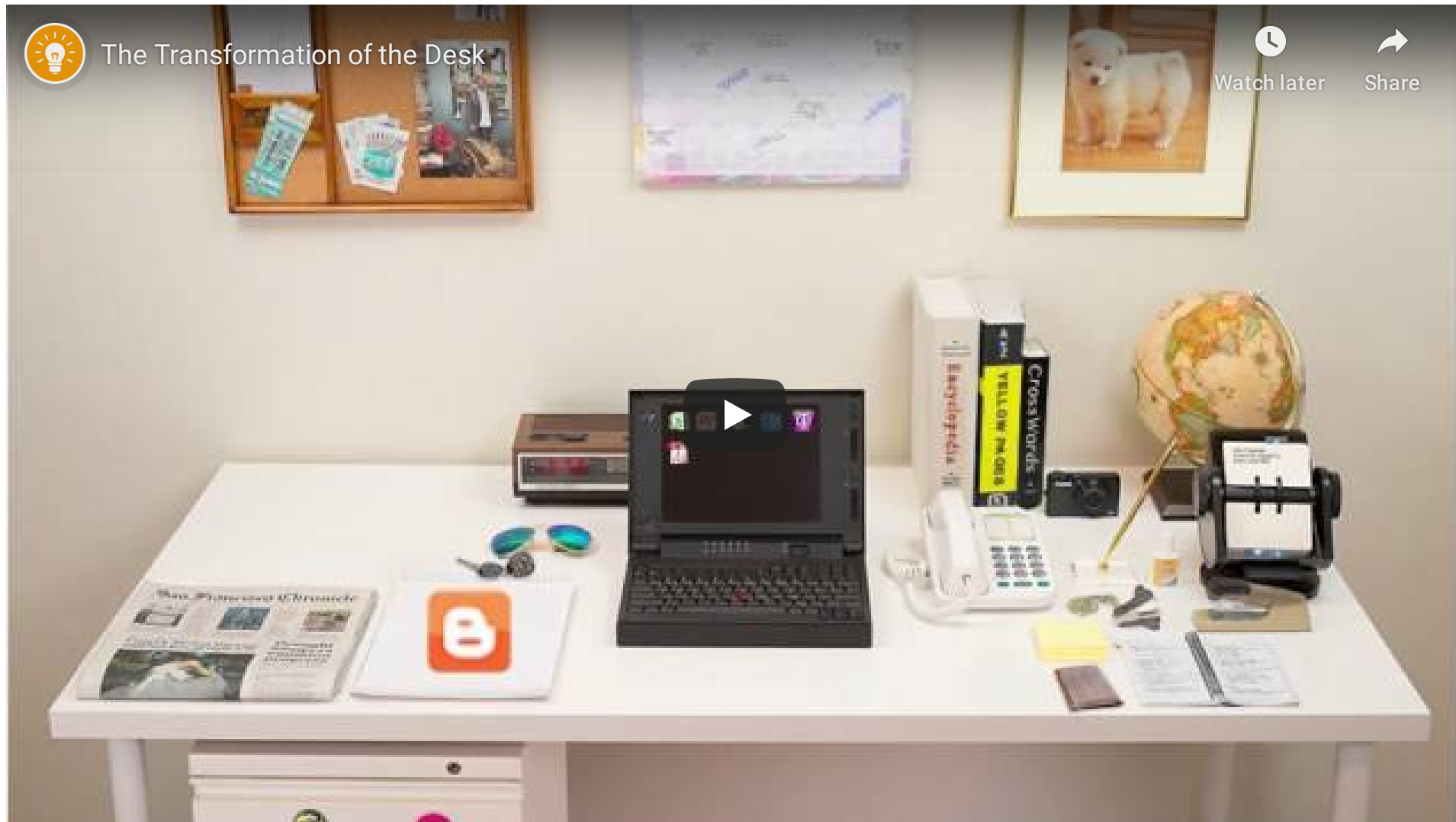
Note

A PDF version of
this course is

Logistics – Teams [URL]

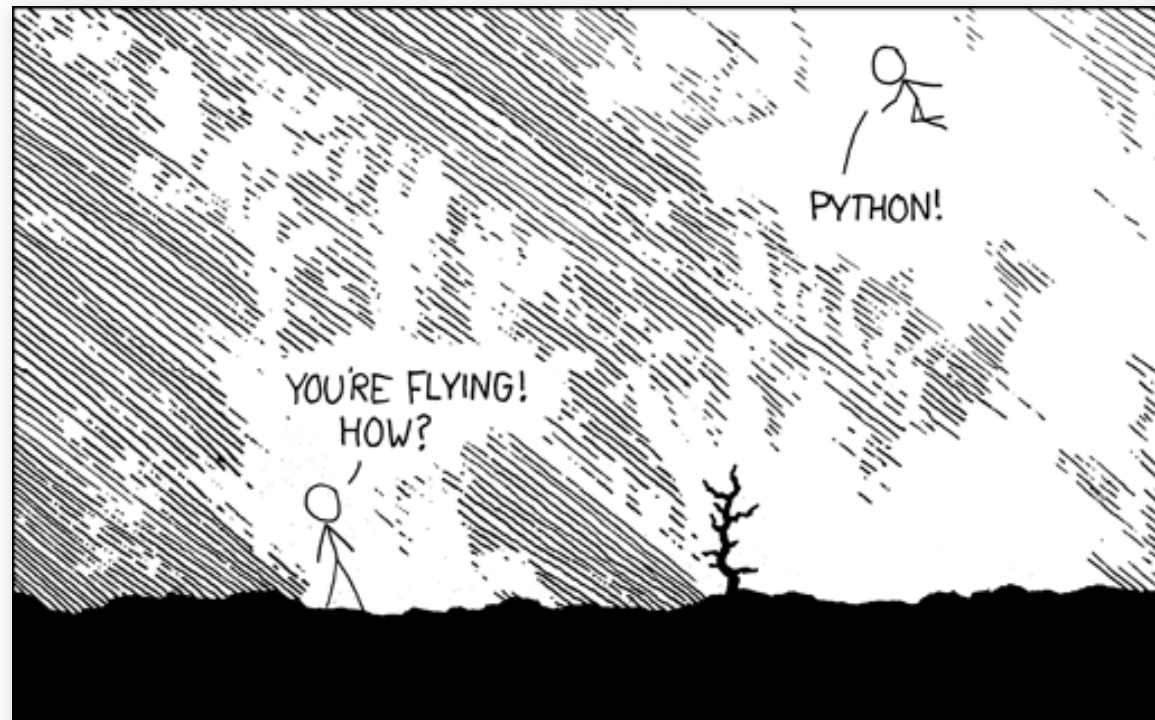


Code



Driving Vs automobile engineering

Python



I LEARNED IT LAST NIGHT! EVERYTHING IS SO SIMPLE!
HELLO WORLD IS JUST
`print "Hello, world!"`

I DUNNO...
DYNAMIC TYPING?
WHITESPACE?

COME JOIN US!
PROGRAMMING
IS FUN AGAIN!
IT'S A WHOLE
NEW WORLD
UP HERE!




BUT HOW ARE
YOU FLYING?

I JUST TYPED
`import antigravity`

THAT'S IT?

... I ALSO SAMPLED
EVERYTHING IN THE
MEDICINE CABINET
FOR COMPARISON.



BUT I THINK THIS
IS THE PYTHON.

Python

- General purpose programming language
- “Sweet spot” between “*proof-of-concept*” and “*production-ready*”
- Industry standard: **GIS** (Esri, QGIS) and **Data Science** (Google, Facebook, Amazon, Netflix, The New York Times, NASA...)

Self-directed learning

Prepare

- This is a **flipped class**: it's like a gym, the “subscription” does not make you fit
- I won't be leading/lecturing on computer material
- **Bring** questions, comments, feedback, (informed) rants to Teams/class
- **Teams, Teams, Teams**
- **Collaborate** (it's **NOT** a zero-sum win!!!)

More help!!!

This course is much more about “learning to learn” and problem solving rather than acquiring specific programming tricks or stats wizardry

- Learn to ask questions (but don't expect exact answers all the time!!!)
- Help others as much as you can (the best way to learn is to teach)
- Search heavily on Google + Stack Overflow

Assignments

Assignments

- In-lab computer tests: W.5 (25%) and W.10 (25%)
- Computational essay (W.12, 50%)
 - Equivalent to 2,500 word
 - Report (*notebook*) with code, figures (e.g. maps), and text
- Discussion board (5%)

NOTE: recommendation letters only for great students (>70)



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