



Data
Schools

Planning: Teaching

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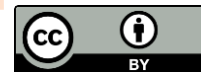
We'll look at:

- Choosing the curriculum
- Instructors and helpers
- Computer setup
- Venue
- Stickies and printouts
- How to teach
- Expert Awareness Gap
- Resources: How to Teach

Choosing the Curriculum



Data Science	Data Stewardship
Introduction to Unix Shell	
Git for Version Control	
Programming for Analysis (R/Python)	
Research Data Management	
Open and Responsible Authorship	
Information Security	
Machine Learning	Advanced RDM: Metadata, Persistent Identifiers, Data Discovery, Automated DMPs, Repositories, and Ontologies
Neural Networks	
Computational Infrastructure	



Instructors and Helpers

- Familiar with tools they teach
- Some experience in teaching will be helpful
- Co-instructors
- Make material available to learners
- Approachable

Computer Setup

- Connect to projector
- Layout, font size, color, etc.
- Notes: paper / phone / ipad

Venue

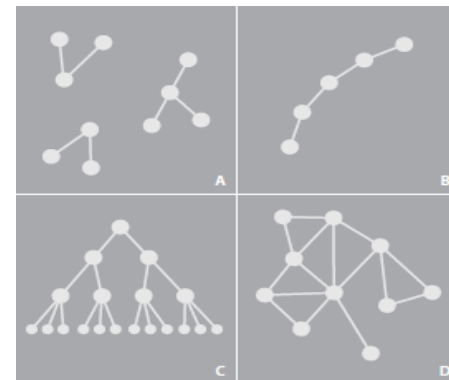
- Arrangement of tables/chairs
- Sound system (microphone or not)
- Screen and whiteboard

Stickies and Printouts

- Use anything to enhance your teaching
- Stickies – regular feedback
- Printouts – cheat sheets / command summaries / exercises

How to Teach

- How do students learn?
 - Supportive environment – Code of Conduct
 - Reference to what they already know (prior knowledge)
 - Transfer information from working memory to long-term memory
 - Practice, practice, practice!
 - Feedback
 - Motivation – beliefs about intelligence; learning vs performance goals; value and relevance
 - Show the “big picture” – help with knowledge organizations



Expert Awareness Gap

- “Expert blind spot” – when instructor doesn’t notice learning needs of novice learners
- Teach complex skills systematically without missing pieces
- Allow focused practice, then whole-task practice
- Be careful not to exceed people’s cognitive load
- Aim for far transfer (i.e. beyond the classroom)
- Develop trust in your own style while being open to improvement

Resources: How to Teach

- [PDF: Deans for Impact] The Science of Learning: https://deansforimpact.org/wp-content/uploads/2016/12/The_Science_of_Learning.pdf
- [Book: Ambrose et al.] How Learning Works: 7 Research-Based Principles for Smart Teaching: <https://www.pdf-archive.com/2017/04/20/how-learning-works-ambrose-bridges/how-learning-works-ambrose-bridges.pdf>
- [Webinar: Greg Wilson] What Every Data Scientist Should Know About Education: <https://rstudio.com/resources/webinars/what-every-data-scientist-should-know-about-education/>



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Thank you!