install.packages("TeachR")

makeExpert = function(student, tools=NULL){
    expert = teach(student, tools="ecoinformatics")
    return(expert)
}

If only there were a package for that...
Ecoinformatics education for everyone

Drew Kerkhoff

Kenyon College
(Not just for grad students!)

Why?
It may help you get a grant...
Core Competencies and Disciplinary Practice

Fully 1/3 directly related to what we do!

It may help you get a grant…
The future depends on it...
The future depends on it…

If you had never used a microscope, how would you feel about “cell theory”?

When we don’t understand the mechanisms of evidence, it is easy to dismiss scientific insights as “just a theory.”
Introductory/Core Lectures and Labs

Specialized Courses

Additional Math/Stat or CS Courses

Research

Power of Competency

Students Exposed
What are the key concepts/competencies of ecoinformatics?
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- Coding and reproducible workflows
- Data management and manipulation
  - Multi-source
  - Large datasets and multiple data types (data.frame, spatial, raster, phylo)
- Data visualization/analysis
- Modeling
What are the key concepts/competencies of ecoinformatics?

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Where do we currently find them (if at all) in undergraduate biology curricula?

What are the barriers to incorporating them?
Introductory/Core Lectures and Labs

Specialized Courses

Additional Math/Stat or CS Courses

Research

Students Exposed

Data Analysis/Visualization

Modeling

Coding/Workflow

Data Management

Power of Competency
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How do we go from this?
Introductory/Core Lectures and Labs

Specialized Courses

Additional Math/Stat or CS Courses

Research

Students Exposed to this?

Power of Competency
Primming: Data Science in Intro Labs

Introductory/Core Lectures and Labs

Specialized Courses

Additional Math/Stat or CS Courses

Research

Students Exposed

Coding/Workflow
Data Analysis/Visualization
Data Management

Modeling

Power of Competency
Example: Kenyon Biology

Intro Lab
- *Ecology Lab 2nd-3rd year

Specialized Courses
- Global Ecology 3rd – 4th year

Additional Math/Stat or CS Courses

Research

Introductory/Core Lectures and Labs

All majors
- Coding/Workflow
- Data Analysis/Visualization
- Data Management

Students Exposed

Power of Competency

Coding/Workflow
- Data Analysis/Visualization
- Data Management
- Modeling

*Ecology Lab 2nd-3rd year

Data Analysis/Visualization
- Data Management
- Modeling