ESM 438 Week Five

Student Choice!

Instructor: Alex Phillips

UC **SANTA BARBARA**
Bren School of Environmental
Science & Management

By the end of this class you will have a completed 10-15 minute presentation

Lecture	Lab
General Public Speaking Skills	Movie Monologues & Elevator Pitches
Outlining Presentations	Short Story & Introductions
Presenting Data & Slide Design	Methods & Results
Answering Questions	Conclusions, Q & A, Interview Blitz
Intro to Graphic Design	*Full Presentations*

Take a few minutes to fill out your class and instructor forms

Thank you for your feedback!

Graphic design improves science communication but is rarely included in science education

A tour of what not to do…
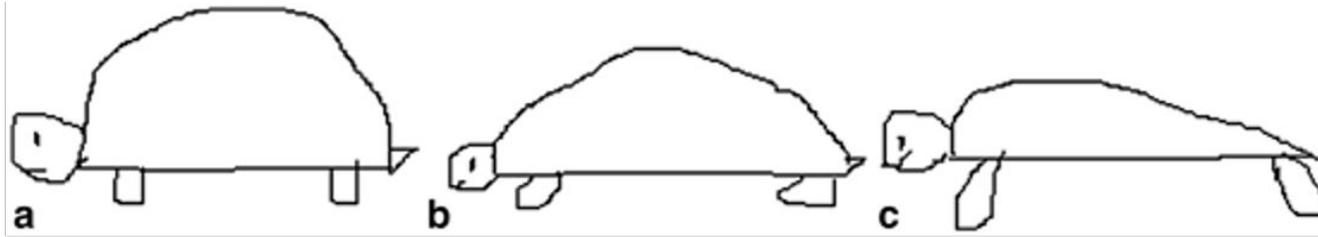
Fig. 12.17 A sketch of turtle shell morphology gives hint to habitat associations. The general trend follows: **a** terrestrial species have highly domed shells; **b** semiaquatic shells are more streamlined; **c** aquatic species have the most hydrodynamic shells

2015

A

BINNED FREQUENCY DATA – D4S139
CHINESE, JAPANESE, KOREAN & VIETNAMESE

□ CHI ▨ JAP ▧ KOR ■ VIE

B

BINNED FREQUENCY DATA – D10S28
CHINESE, JAPANESE, KOREAN, VIETNAMESE

□ CHI ▨ JAP ▧ KOR ■ VIE
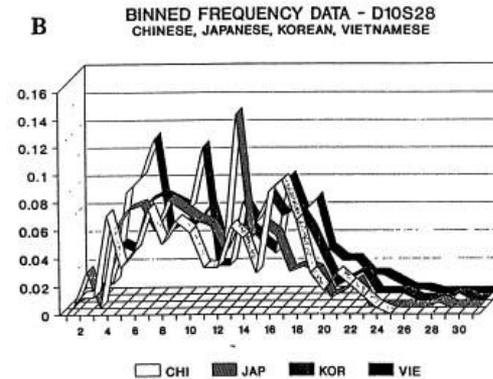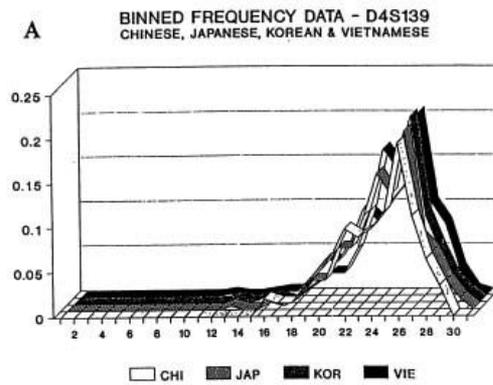
Fig. 4. *Fixed bin distribution (histogram) for two loci and four Asian subpopulations (used with permission from John Hartmann): the boundaries of the 30 bins (vertical axis) are determined by the FBI; these bins are not of equal length. Sample sizes (numbers of individuals) for Chinese, Japanese, Korean and Vietnamese are 103, 125, 93 and 215 for D4S139 and 120, 137, 100 and 193 for D10S28. The horizontal axis is the bin number; bins are not of equal length.*

1994
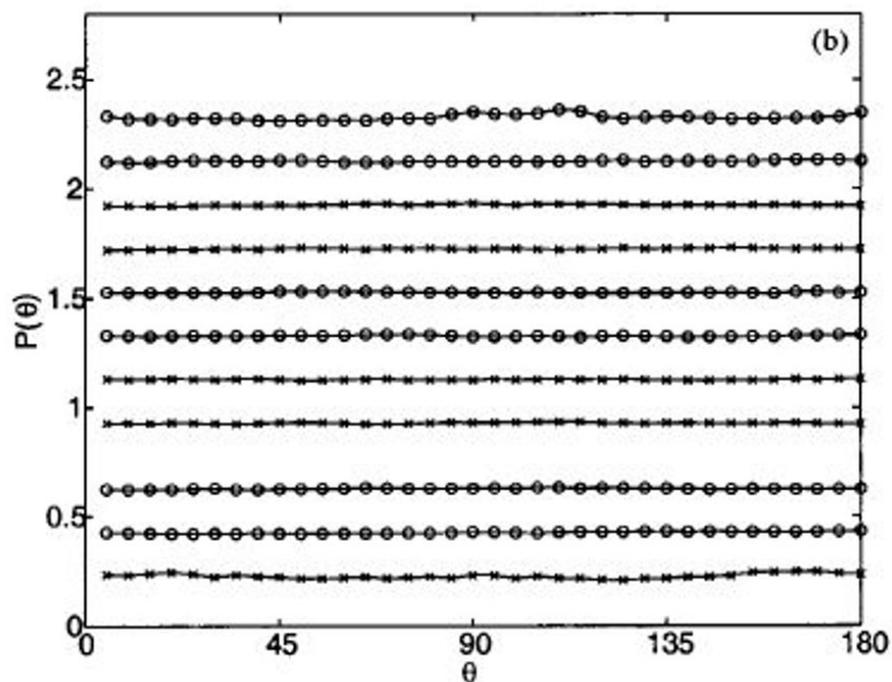
Figure 8. Probability distribution as a function of position in the film for angle made by the largest ellipsoidal axis of the chain with (a) the *x*-axis (ϕ) and (b) the *y*-axis (θ). The successive probability distributions are vertically offset by 0.1 for clarity.

2016

C

D

2005
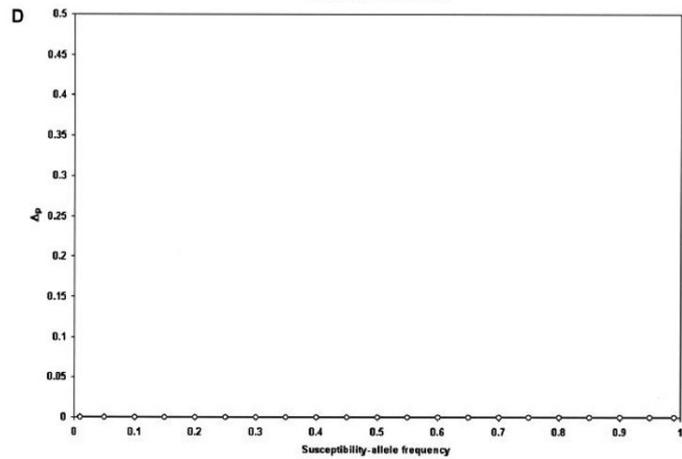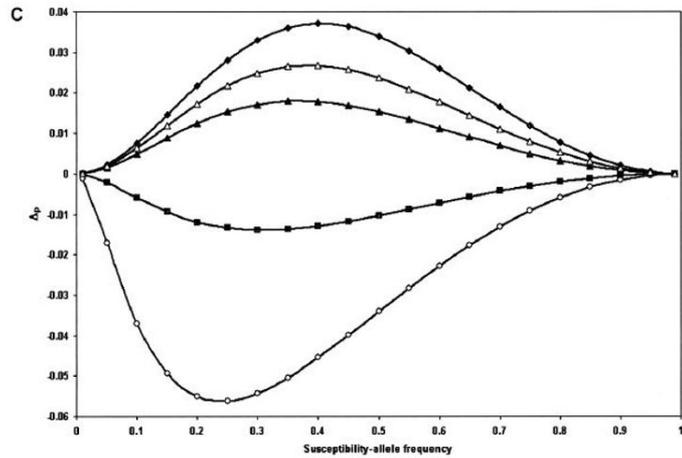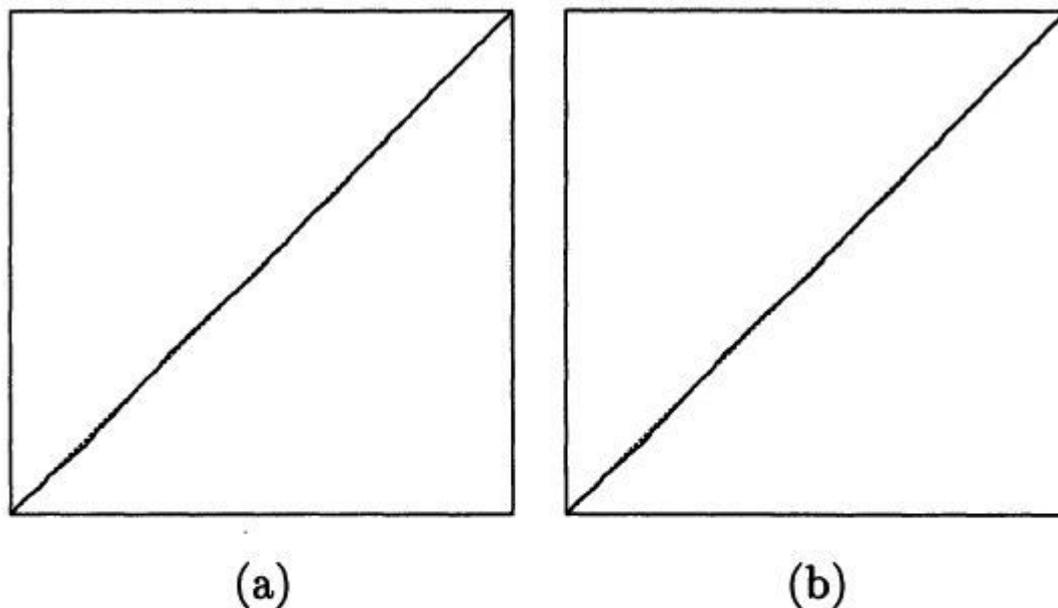
Figure 1. SRQ Plots of T_i/T_n (Vertical Axes) Against i/n (Horizontal Axes) for the Gibbs Sampler (a) and an Alternating Gibbs/Independence Sampler (b) for the Pump Failure Data Based on Runs of Length 5,000. Lines through the origin with unit slope are shown dashed; axis ranges are from 0 to 1 for all axes.

1995

241074 200506 232706
erythritol 223121
arabinose
237973 levoglucosan
glycerol 3-galactoside
267647 levanbiose

228911

alpha ketoglutaric acid

234580 243111

224635

isothreonic acid

241892

269269 threonic acid

lactic acid

269279

2011
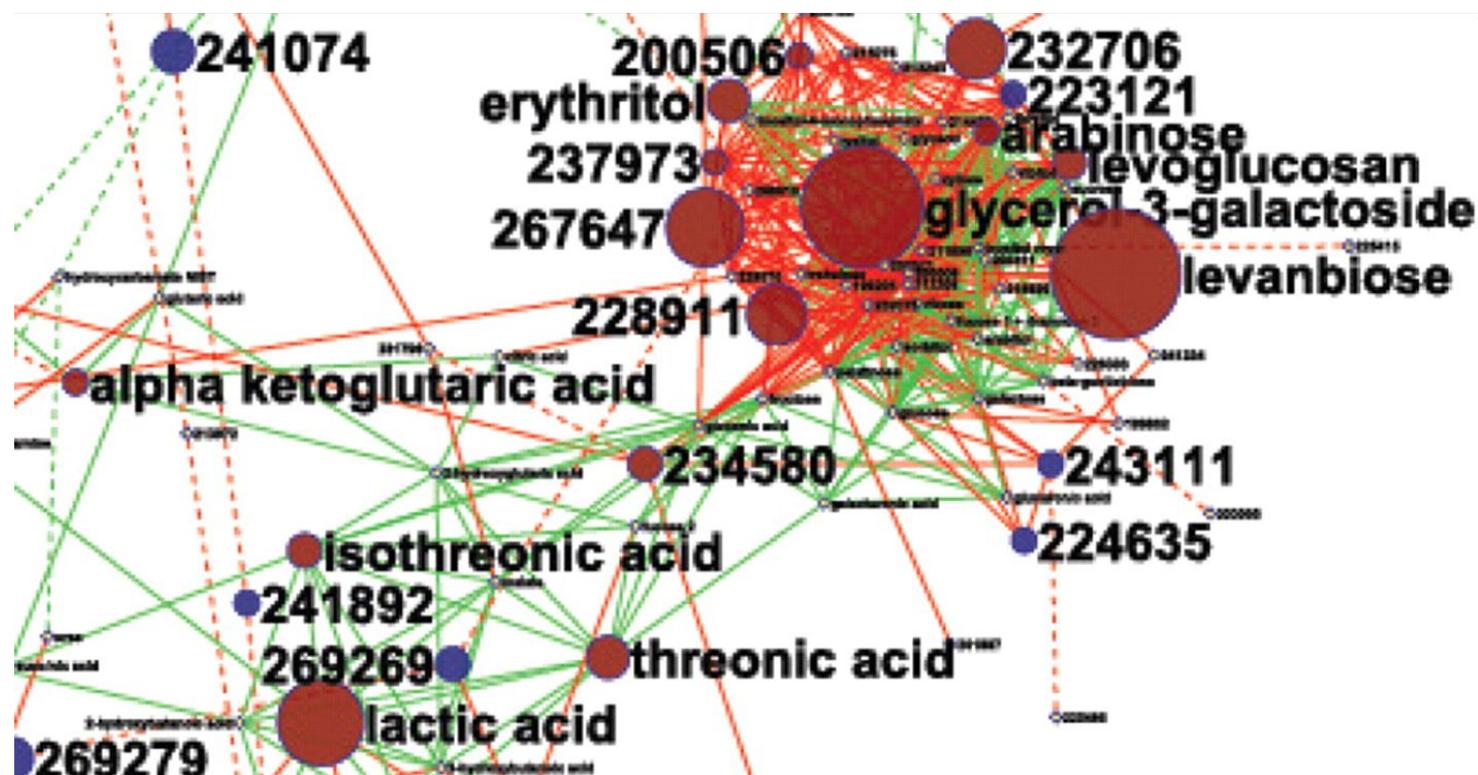
COMPARISON OF RATIOS OF DNABIT COMPRESS WITH EXISTING ALGORITHMS

2011

2013

2013
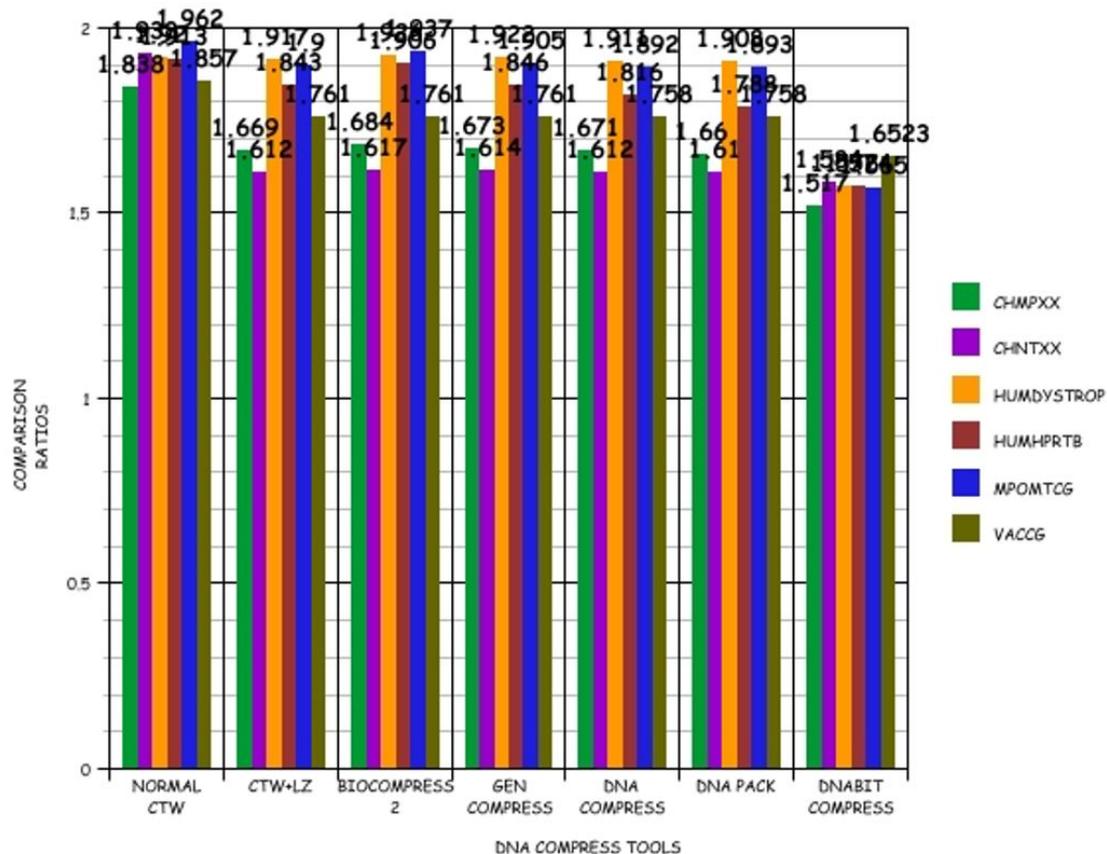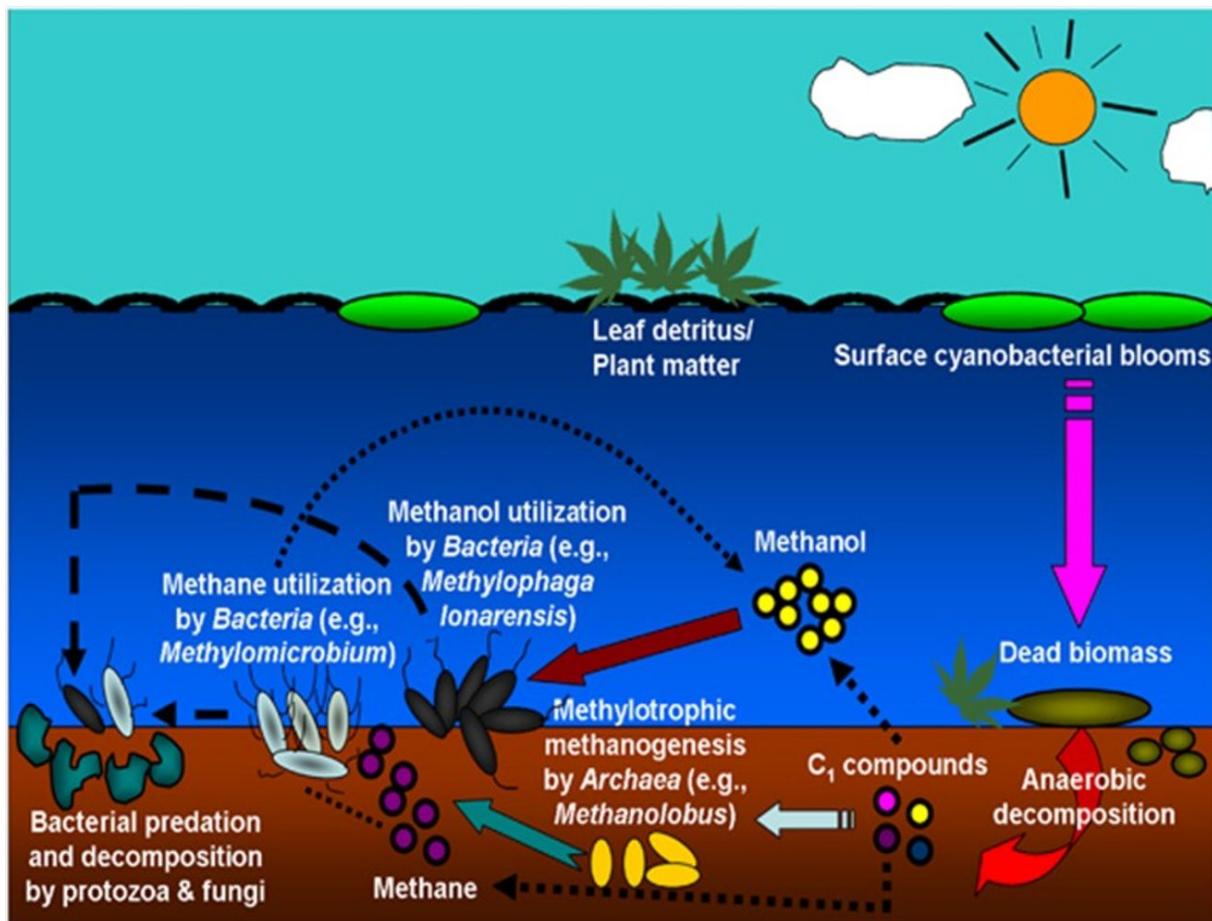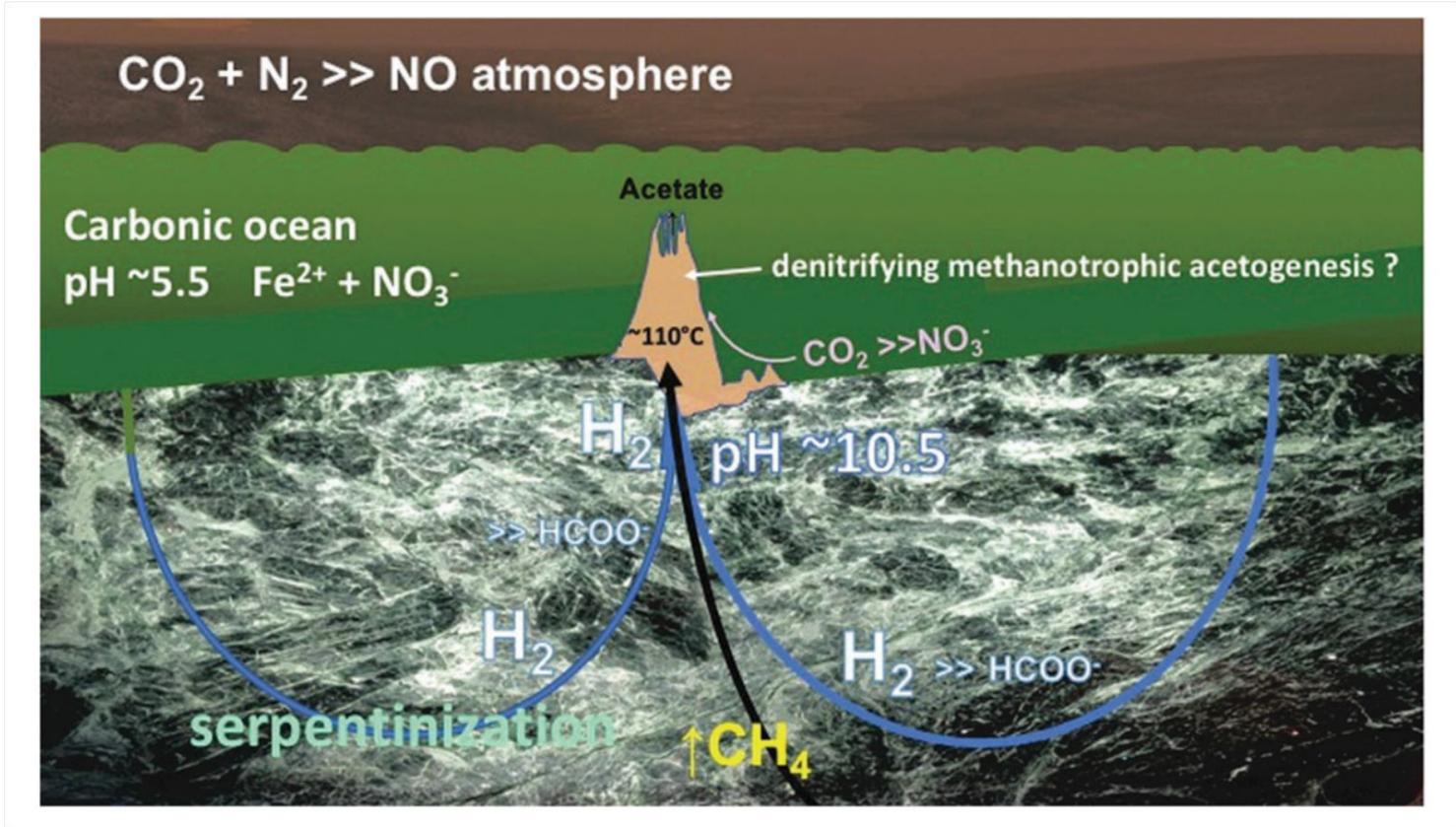
a PI(3)K/Akt - signalling (77%, 357 samples)

Core module: $P < 1\times10^{-3}$, $P^* = 0.02$

JNK/JUN mediated apoptosis

Evading apoptosis

Proliferation

NF-κB
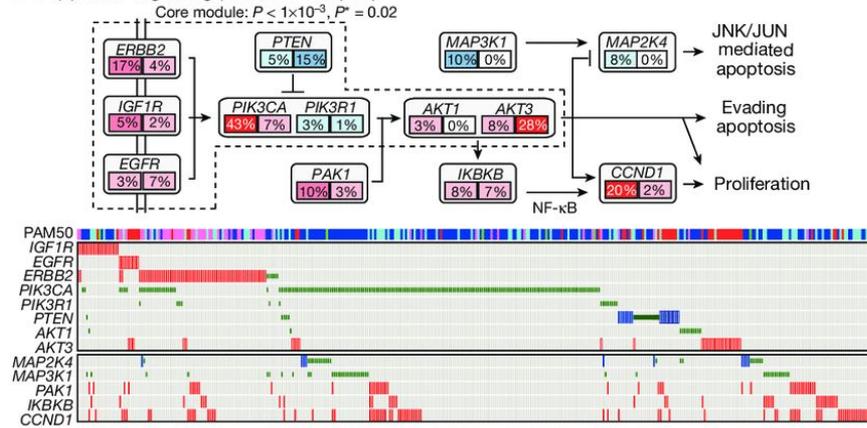
b p53 - signalling (49%, 227 samples)

$P = 0.002$

Apoptosis
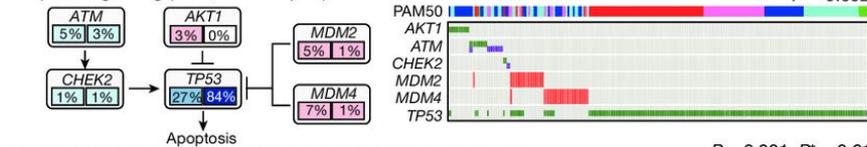
c Cell cycle checkpoints - Basal tumours only (57%, 46 samples)

$P = 0.001$, $P^* < 0.01$

p53/p21 — S-phase entry

Cell-cycle arrest

S/G2/M checkpoints

Module diagram
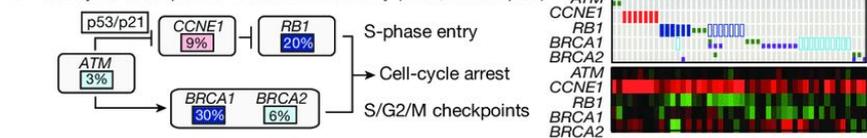
Inactivating ←→ Activating
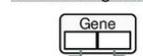
Not-basal Basal

→ Activating interaction
⊣ Inhibiting interaction

Fingerprint
- Somatic mutation
- Germline mutation
- Downregulation
- Upregulation
- Homozygous deletion
- High-level amplification
- Hyper-methylation

PAM50
- Luminal A
- Luminal B
- HER2-enriched
- Basal-like
- Normal-like

mRNA heat map
Low — High
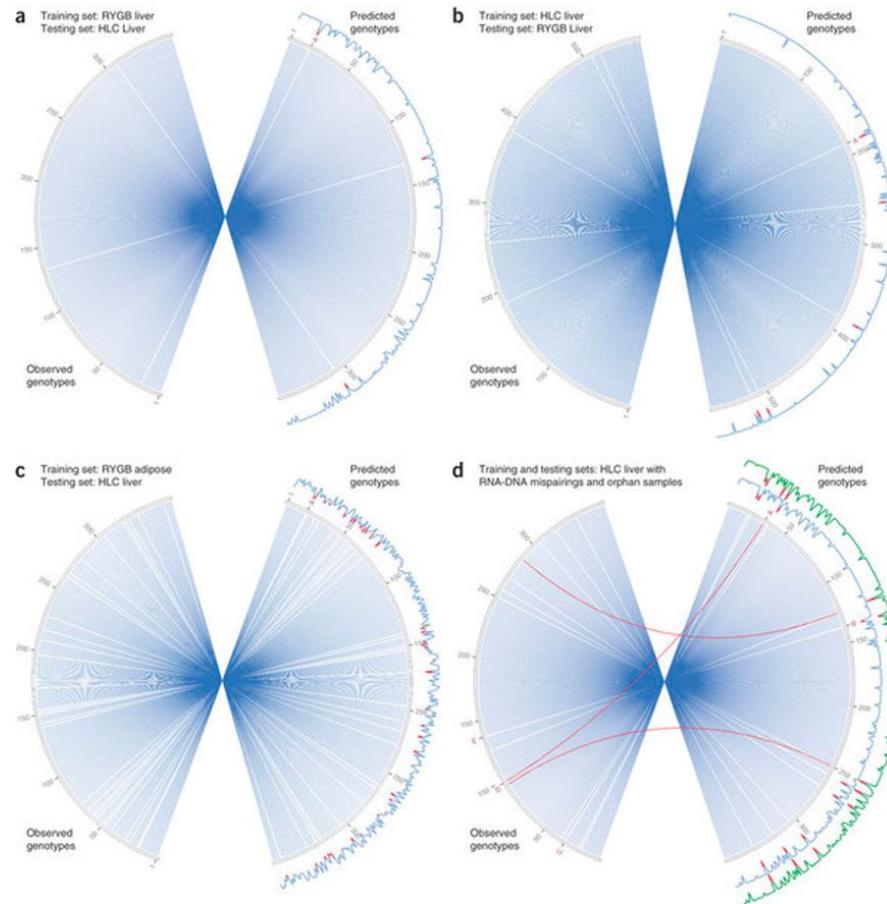
2012

a
Training set: RYGB liver
Testing set: HLC Liver

Predicted genotypes

Observed genotypes

b
Training set: HLC liver
Testing set: RYGB Liver

Predicted genotypes

Observed genotypes

c
Training set: RYGB adipose
Testing set: HLC liver

Predicted genotypes

Observed genotypes

d
Training and testing sets: HLC liver with
RNA-DNA mispairings and orphan samples

Predicted genotypes

Observed genotypes

2012

Recommended Data Viz & Graphic Design Tools:

Drawing:	Plotting:	Editing:	Photo:	Layout:

Procreate
$10

R Studio
free

Affinity Designer
$55

Capture One
$300

Affinity Publisher
$55

Sketches Pro
$6

Microsoft Excel
$7/month

Adobe Illustrator
$240/yr

Adobe Lightroom
$120/yr

Adobe InDesign
$240/yr

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Our first step is to get used to Affinity Designer!

- Personas
- Pixel vs Vector
- Artboards
- Artboard Sizes
- Shapes
- Snapping
- Changing Colors
- Pen Tool

- Changing Strokes
- Text Tool
- Copy/pasting
- Dragging + shift
- Aligning
- Layers
- Grouping
- Color Palettes

Next, we will remake a ggplot for publication
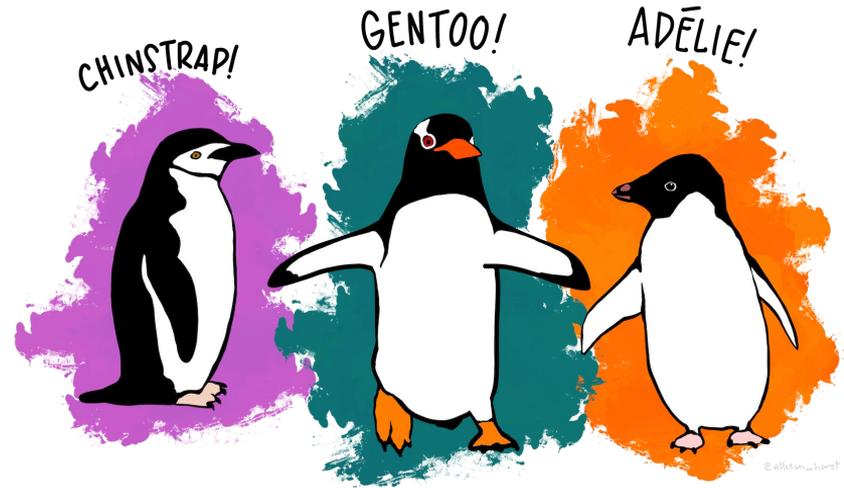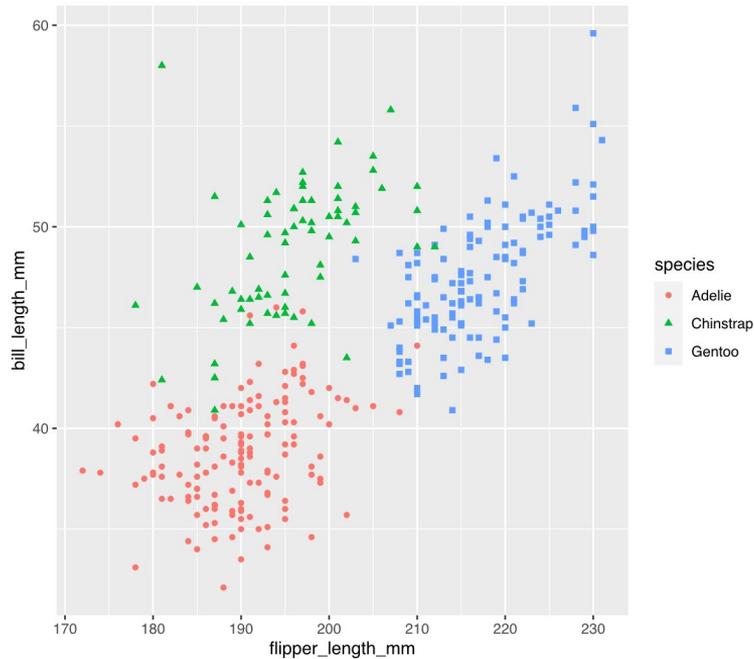
Horst et al. 2022, Palmer Archipelago Penguins Data in the palmerpenguins R Package

Reminder: a strategic color scheme is a powerful science storytelling tool

Find a color palette to use for editing our figure

- [Calecopal](#)
- [Color Hunt](#)
- [Coolers](#)
- [Adobe Color](#)

A quick comparison of file types for exporting

PNG
good for sharing but not printing, can export without background

JPG
best for photo/poster printing, very good at compression

PDF
good for printing, displaying online, ~opening in vector editing

EPS
Similar to PDF, good for opening in vector editing and printing

Raster Formats (resolution dependent)

Vector Formats (resolution independent)

Keyboard shortcuts make graphic design faster
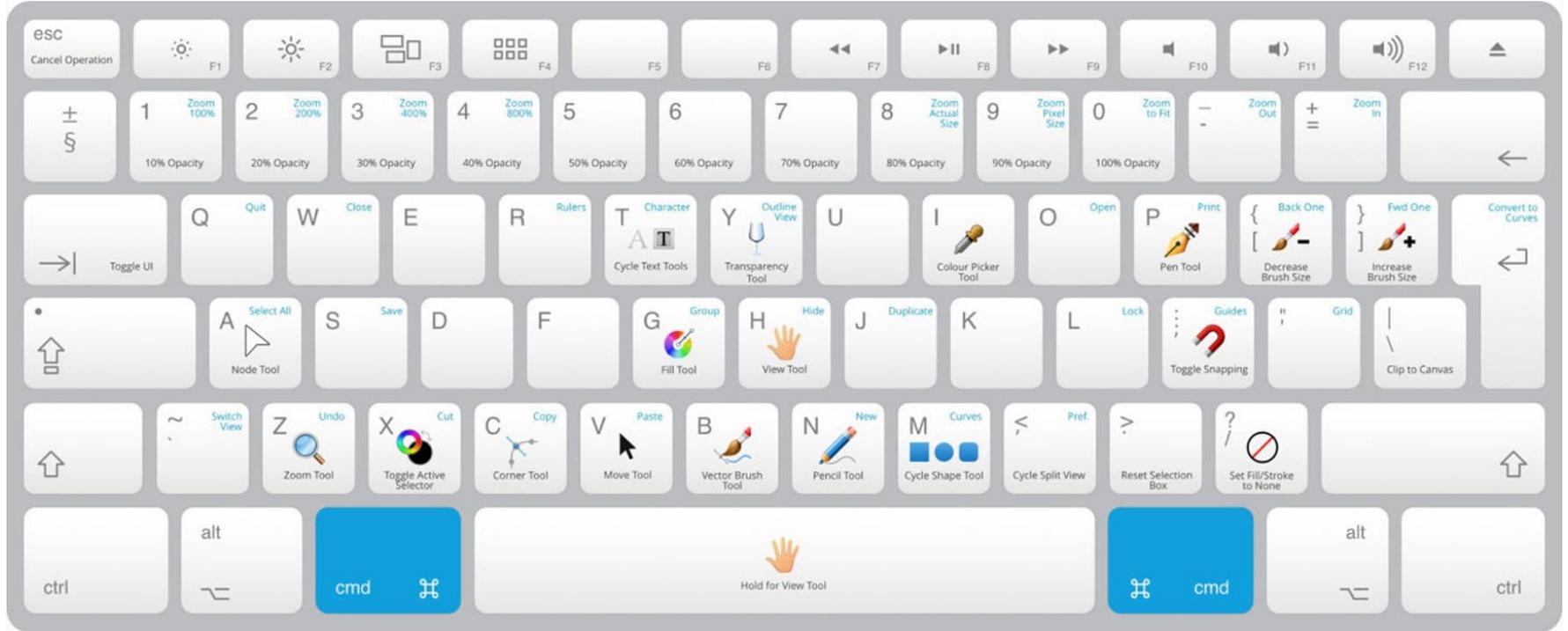
BEFORE/AFTER

Default plot to presentation worthy figure
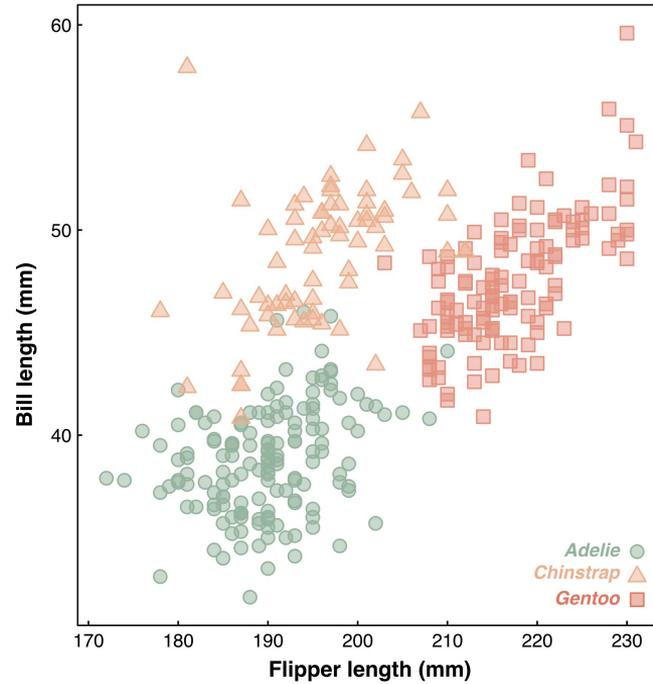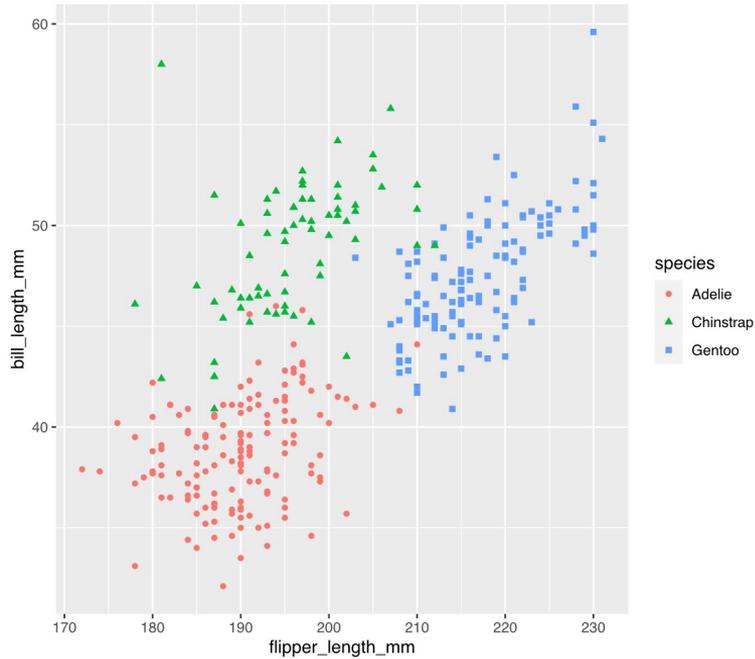
With time remaining, let's dive into more advanced maneuvers:

Potential topics:

- Text on any path
- Tracing an image
- Adding new fonts
- Drawing freehand

- Color gradients
- Global colors
- Drawing with ipad
- Anything else?