

LAB4 ASSIGNMENT INSTRUCTIONS

Entering your data in the e-matrix and submission to your TAs (in-lab):

- 1- Enter your name, student ID and section at the top of the matrix
- 2- Select characters and species from the drop-down lists (**do NOT type the names**) on the e-matrix (grey cells). The lamprey has already been selected as the outgroup.
- 3- Enter polarized data only (0, 1 and 2 are the only accepted values). **Tip:** If you work in pair, one student can read the values while the other types the data in.
- 4- Save your completed matrix as "XXXXXXX.xls" (XXXXXXX=student ID) on desktop (keeping a backup copy is strongly recommended).
- 5- Log on BIO1130 Laboratories **on Virtual campus**, then click on **Cladogram matrix 2010**.
- 6- Enter your name, student ID and section in the Submission text box.
- 7- Attach e-matrix by clicking the "Add attachments" button.
- 8- Click on **"Submit"** to finish and submit your matrix.

Your corrected matrix will be returned as an attachment named "XXXXXX_corrected.pdf" at the date indicated by your TA:

To get your corrected matrix:

- 1- Log on to Virtual campus. Follow the "Cladogram Matrix" link on the homepage and click on the attached file "XXXXXXX_corrected.pdf" (XXXXXXX=your student ID).
- 2- Save and **print** the corrected matrix.

This is extremely important: Use the corrected matrix to build your cladogram - Print it and attach it to your report.

Label your matrix: If you changed the numbering of characters and the letters representing species, indicates what the new letters and numbers mean.

Do NOT use symbols other than numbers for characters and letters for species (no initials, short names.....)

Report content:

- 1- Title page
- 2- **Assignment sheet (species and characters list)**
- 3- **Printout of the corrected matrix sent back by your TA (do not forget or get a zero for the observation part)**
- 4- Cladograms:
 - a- Initial cladogram with no resolution
 - b- One cladogram per step/character (all characters added successively)
 - c- Comment for each step including full name of character added AND your reasoning if a homoplasy has been added
 - d- Final cladogram: big, clean and annotated (species full names).
- 5- Conclusion: How does endothermy (a character that hasn't been used to build the tree) fit in your cladogram? What is your hypothesis about its evolution in vertebrates?

Hint: Write down what species on your cladogram that are endotherms? What is their relationship? What can you conclude about endothermy as a character?

DUE DATE: ONE WEEK AFTER YOUR LAB - SEE SCHEDULE on website

(See next page for more instructions)

Additional instructions:

You must draw ONE cladogram per character unless you have redundant characters = characters that have the same species distribution on the matrix. In this case (ONLY) you can add two characters in one step.

Character with more than 1 derived character: both derived states must be added during the same step [or 2 consecutive steps]

Indicate the full name of the character(s) added at each step in the comments (below the cladogram).

When you add a non-homologous character indicate what type it is (convergence or reversal) and justify briefly your choice. Typically the comments are 1 sentence.

Final cladogram: Full page. Write species names in full text NOT character name (keep using numbers)

The title page and conclusion paragraph (max. 10 lines 12pts font 1.5 line spacing – can be shorter) should be typed then printed.

Cladograms can be drawn by hand, on white paper – 2 cladograms per page except for final cladogram (full page)

BRING YOU LAB COAT AND SAFETY GOGGLES