Research proposal 20 points (1/3 writing)

The research proposal will be no more than one page long (but no less than 1/2 page long) and should contain the following:

1) Briefly identify your project and the question to be investigated
   **What is your question?** (5)

2) Tell us why you think this question is interesting and worth pursuing
   **Why is it interesting? Why do we care?** (5)

3) Explicitly state the hypotheses and predictions that you plan to examine
   **What do you plan to do to address the question and why?** (5)

4) Tell us how you plan to evaluate these hypotheses and what kind of data or information you plan to gather
   **How do you plan to test the hypotheses?** (5)

5) Tell us briefly about what is being done in this area – this is to be based on the literature survey summarized in the reference list.

Reference list: 20 points total

**SEPARATE PAGE!**

1) Reference list should be at least 10 (ten) original scientific articles on the topic, listed in the alphabetical order of the authors and in format similar to the list of papers in your syllabus. (10)

References can only be to the published scientific work (e.g., no references to the online publications, web pages, CDs, etc will be allowed unless justified).

2) In parentheses state what the paper is about: (10)
   
   E.g.:
   

Oral presentation 10 points

3-5 minutes presentation introducing your question and approach (proposal). You may use dry erase board or overhead transparencies, or PowerPoint slides (will need those a day before).
Important – the proposal will not be graded without this!

Co-authorship statement. On the title page of your project paper please write the following:

“We agree that the following members have contributed equally to the preparation of this report”.

ALL members of the group should sign their names under this statement.
Which came first, the chicken or the egg?

How to answer?

Essentially – which one is an evolutionary novelty?

Aristotle
(384 - 322 BC)

Human  Opossum  Chicken  Salamander  Fish

The Hourglass Model

Exceptional similarity = Phylotypic stage
The bottleneck of hourglass

Huge diversity

WHY?

Evolutionary Diversity

WHY?
1. Most conserved/fundamental functions (Kayla, Cody)
2. Least exposed to selection (located between non-congruent diversifications) (Nate, Cody).
3. Mutations that affect phylotypic stage are least likely to be adaptive. Thus this stage is conserved (Moira).
4. Being stuck in the middle—a consequence of hierarchy (Moira).
5. Phyla-specific body plans cannot unfold before certain (late) developmental stage (Mike, Cody).
6. Eggs and early embryos are actually "adult" (maternal) traits and should be on top. Should start at the middle! (Kennedi).
7. Key developmental genes expressed there.....

Level of within-organism interaction
How Japan’s most promising young stem-cell scientist duped the scientific journal Nature – and destroyed her career

On January 28, a young researcher known for her intelligence and academic record at Japan’s renowned research institution was accused of fabricating research data. The incident has raised serious doubts about her groundbreaking research on the development of new cell lines, which was her master’s thesis. There were many questions raised about the validity of her research and the ethics of the research community. The incident has sparked a nationwide debate about the integrity of scientific research in Japan.

Yoshiki Sasai

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