

Introduction to Biology. Lecture 23

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October 24, 2012

Outline

- 1 Questions and answers
 - Exam 3
 - Where we are?
- 2 Animals: chordates
 - Classes of chordates and their phylogeny

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 - Exam 3
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Questions and answers

Exam 3

Results of Exam 3: statistic summary

Summary:

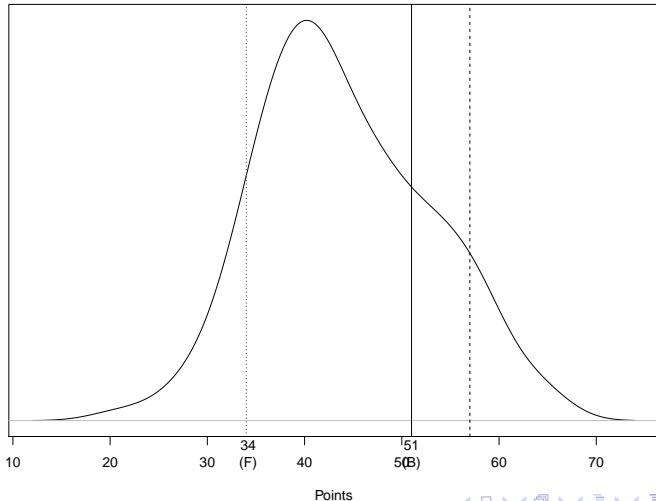
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
21.00	38.00	43.00	44.11	50.00	65.00	13

Grades:

F	D	C	B	max
34	40	46	51	57

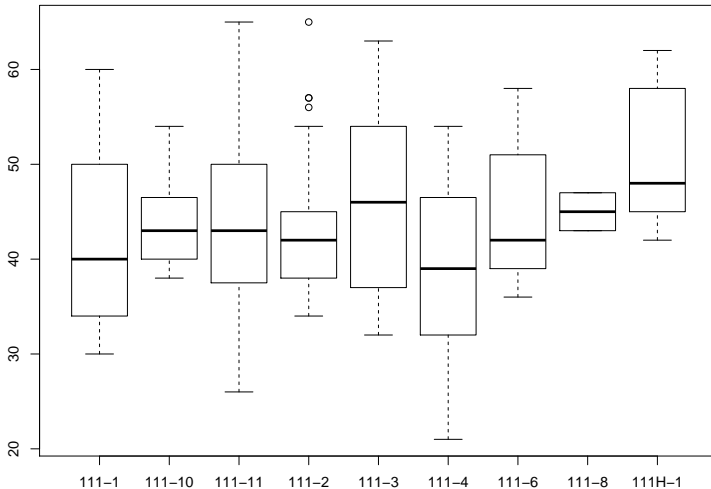
Results of Exam 3: the curve

Density estimation for Exam 3 (Biol 111)



Results of Exam 3: sections

Competition between Biol 111 sections (Exam 3)



Results of Exam 3: some questions I

- Telomerase:
 - Ⓐ Adds nonsense sequence to the end of DNA
 - Ⓑ Prevents aging
 - Ⓒ **Both of above**
- Circular molecule of DNA:
 - Ⓐ Is harder to keep and replicate
 - Ⓑ Has no telomere problem
 - Ⓒ **Both of above**



Results of Exam 3: some questions II

- Multicellular organisms:
 - **A** Could function without both reproductive cells and tissues
 - **B Always have specialized reproductive cells**
 - **C** Always have specialized tissues
- How to name eukaryotes without tissues?
 - **A** Plants
 - **B** Monera
 - **C Protists**

Results of Exam 3: some questions III

- *Opabinia*:
 - Ⓐ Had five eyes
 - Ⓑ Had multiple swimming legs
 - Ⓒ **Both of above**
- Lobopod worm:
 - Ⓐ *Hallucigenia*
 - Ⓑ *Aysheaia*
 - Ⓒ **Both of above**

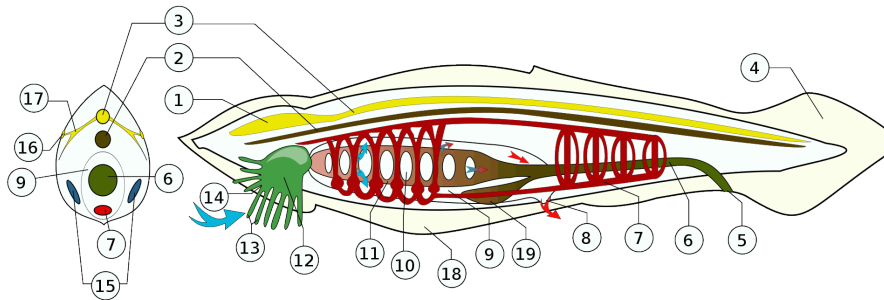
Results of Exam 3: some questions IV

- To make lipids from carbohydrates, plants need:
 - Ⓐ To add nitrogen
 - Ⓑ **To recombine atoms in molecule**
 - Ⓒ To add phosphorous and nitrogen
- Closed gut occurs:
 - Ⓐ In arthropods
 - Ⓑ In chordates
 - Ⓒ **In anthozoans (corals)**

Questions and answers

Where we are?

Chordate body plan



Animals: chordates

Classes of chordates and their phylogeny

Eight classes of Chordata

Acrania:

Class 1. Leptocardii: lancelet

Vertebrata:

- Pisces:

Class 2. Chondrichthyes

Class 3. Actinopterygii

Class 4. Dipnoi

- Tetrapoda:

Class 5. Amphibia

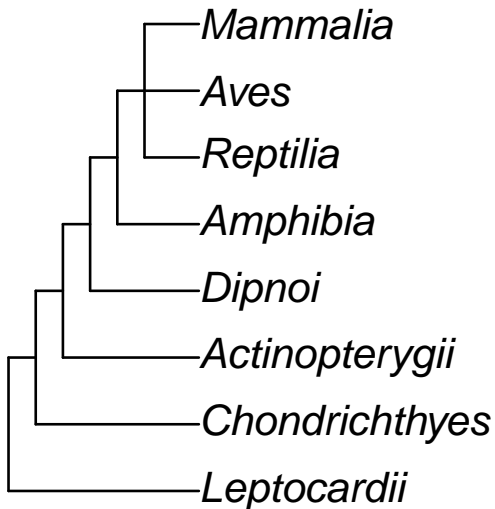
Class 6. Reptilia

Class 7. Aves

Class 8. Mammalia



Phylogeny of eight classes



Summary

- Classes of vertebrates differ mostly in overall optimization of their body functions and in adaptations to the specific environment

For Further Reading



Vertebrates.

<http://en.wikipedia.org/wiki/Vertebrate>



Fishes.

<http://en.wikipedia.org/wiki/Fish>