

# Introduction to Botany. Lecture 29

Alexey Shipunov

Minot State University

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# Outline

1 Questions and answers

2 Plant diversity

- Phylum Bryophyta: mosses



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# Results of Exam 3: statistic summary

## Summary:

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
11.00	35.00	43.00	42.33	51.50	69.00	1

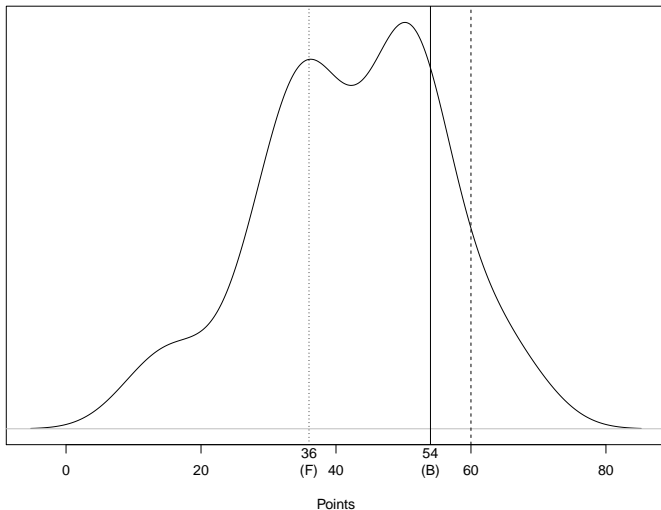
## Grades:

F	D	C	B	max
36	42	48	54	60



# Results of Exam 3: the curve

Density estimation for Exam 3 (Biol 154)



4. Which is the correct sequence of tissues from the center to the periphery?
- A. Cork cambium, phelloderm, epidermis
  - B. Phelloderm, cork cambium, epidermis
  - C. **Phelloderm, cork cambium, phellem**
  - D. Phellem, epidermis, phelloderm
7. Which of the following is a lateral meristem?
- A. **Cork cambium**
  - B. Secondary xylem
  - C. Cortex
  - D. Rhizoderm
20. Plant growing in California deserts should have well-developed:
- A. Guard cells
  - B. **Palisade cells**
  - C. Spongy cells
27. Cells from which type of leaf mesophyll absorb a direct sunlight?
- A. Palisade
  - B. **Spongy**
  - C. Vascular



*Short answers:  
dead cells, xylem and phloem, leaf description*



# Previous final question: the answer

Phylum, ..., order?





# Previous final question: the answer

Phylum, ..., order?

- Class (Lat. classis)



# Plant diversity

## Phylum Bryophyta: mosses



# Bryophyta

- $\approx 20,000$  species
- Sporic life cycle with gametophyte predominance\*
- Sporophyte reduced to sporogon (sporangium with seta), usually achlorophyllous, parasitic
- No roots, only rhizoid cells (long hairy dead cells capable for apoplastic transport)
- Poikilohydric plants
- Gametophyte starts development from protonema



# Protonema



## *Life cycle of mosses*

*Covers: sporogon, biflagellate spermatozoa, the conflict between water cross-fertilization and wind distribution of spores which may be considered as “evolutionary dead end”.*



# Three main groups (subphyla)

- **Hepaticae**—liverworts. Three classes, most primitive are Haplomitriopsida. Body has dorsal and ventral parts, sporogon bag-like, without columella, spores with elaters.
- **Bryophytina**—true mosses. Six classes, most important are Sphagnopsida (peat mosses), Polytrichopsida (haircap mosses) and Bryopsida. Body radial, sporogon long, with columella, spores without elaters.
- **Anthocerotophytina**—hornworts. One class. Body flattened, sporogon long, green, with columella and stomata, spores with elaters.



# Final question (2 points)



# Final question (2 points)

What is a sporogon?





# Summary

- **Bryophyta** are only plants<sub>2</sub> with gametophyte predominance.
- Among **Bryophyta**, Hepaticae is a most primitive group closest to green algae.



# For Further Reading



A. Shipunov.

*Introduction to Botany* [Electronic resource].

2010—onwards.

Mode of access:

[http://ashipunov.info/shipunov/school/biol\\_154](http://ashipunov.info/shipunov/school/biol_154)



Th. L. Rost, M. G. Barbour, C. R. Stocking, T. M. Murphy.

*Plant Biology*. 2nd edition.

Thomson Brooks/Cole, 2006.

*Chapters 22.*

