

Introduction to Biology. Lecture 27

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Outline

- 1 Where we are?
- 2 Genetics and inheritance
 - Meiosis
 - Life cycle



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Three main phyla of plants

- **Bryophyta**: mosses
- **Pteridophyta**: ferns and allies (like clubmosses and horsetails)
- **Spermatophyta**: seed plants (including conifers and flowering plants)



Meiosis

- Chromosome formula: $XX \rightarrow X + X \rightarrow I + I + I + I$
- **The goal of meiosis** is to counterbalance the syngamy
- Meiosis changes genotype of cells because: (1) chromosomes are **recombined** and (2) chromosomes exchange their genetic material



Genetics and inheritance

Meiosis



Stages of meiosis

- First division: reductive part
 - Prophase I: homologous chromosomes form pairs (**synapses**) and start to exchange DNA (**crossing-over**)
 - Metaphase I
 - Anaphase I: homologous chromosomes will go *independently* to different poles
 - Telophase I becomes Prophase II, without interphase (and typically without cytokinesis)
- Second division: equal part (similar to mitosis)
 - Prophase II
 - Metaphase II
 - Anaphase II
 - Telophase II



Genetics and inheritance

Life cycle



Life cycle of unicellular organism



Life cycle of multicellular organism



Summary

- Plant body and its tissues is the result of adaptation for the life on land
- The life cycle is the sequence of events between two events of syngamy
- Gender is the result of division of labor between two gametes: female gametes invest in resources whereas male invest in numbers



For Further Reading



Life cycle.

http://en.wikipedia.org/wiki/Biological_life_cycle



Syngamy.

<http://en.wikipedia.org/wiki/Syngamy> (only intro)

