

# Introduction to Biology. Lecture 1

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# Course in general

## Description



# Course description from catalog

- This course is designed to accommodate one semester of the General Education requirement for non-science majors at Minot State University.
- The course focuses on a comprehensive survey of modern biology with an emphasis on enhancing the science literacy of the college educated student.
- Topics include: cell biology, genetics, evolution by natural selection, systematics, and the impact of human activity on the biosphere.



# My description

- Biology is the largest of all sciences, and develops most rapidly. It is simply impossible to cover **BIOLOGY** in one-semester course.
- I choose a strategy to elucidate the most important biological concepts from the standpoint of the **History of Life**.
- We will go through the major events in this history and learn basic chemistry of life, cell construction, genes and DNA, organization of animal body and other fundamental biological ideas.
- In general, this course is not recommended for science majors



# Instructor

- Dr. Alexey Shipunov
- Office: Moore 229 and University greenhouse (small glass building attached to Cyril Moore)
- Office Hours: Mondays and Wednesdays, 1 pm to 2:50 pm.
- Phone: 858-3116
- E-mail: [alexey.shipunov@minotstateu.edu](mailto:alexey.shipunov@minotstateu.edu), this is the preferable way of communication.



**Lectures** Mondays, Wednesdays and Fridays, 12:00 am to 12:50 am, Moore 16

**Laboratories** See lab manual

Laboratories start next week!!!

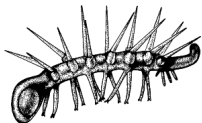




# Web site

© Shipunov, A. Introduction to Biology [Electronic resource]. 2012—onwards.  
Mode of access: [http://ashipunov.info/shipunov/school/biol\\_111](http://ashipunov.info/shipunov/school/biol_111)

## BIOL 111: Introduction to Biology



Course materials:

- [Syllabus](#) (PDF, 0.2 Mb)
- [Lecture 1](#) (PDF, 0.5 Mb)
- [Lab manual](#) (PDF, 1.6 Mb)

[Back](#)

[http://ashipunov.info/shipunov/school/biol\\_111](http://ashipunov.info/shipunov/school/biol_111)

Please check it regularly. There will be much more material due course. As a rule, slides of every lecture will be available after the lecture.



# Textbook

In development, link to the draft version is on the Web site.

Note: students may want to volunteer in the creations of textbook. For that reason, on every exam there are 3 slots to people who want to write essays instead of typical exams.



# Course in general

## Grading



# Exams

- **Five** exams are given during the semester.
- Only **four** best exams contribute to the final grade.
- Missed exams count zero points. There are **no make-up** exams!!!  
**Again, NO MAKE-UP exams in this class.**
- Exam sheets will consist of multiple choice questions, we will use scantron.



# Absence

I strongly recommend to attend lectures regularly. Lecture contents will be the main source of information required for the exams. There are five legitimate reasons for absence:

- A emergency situations,
- B attested medical conditions
- C military duty,
- D participation in MSU sports events,
- E dependent sick leave.



# Points

A total of  $\approx 580$  points can be earned and are distributed as follows (grading points may vary):

**Four best exams** : 400 points

**Laboratories** : 180 points (15 points per lab)



# Grade calculation

- $A \geq 90\%$
- $B \geq 80\%$
- $C \geq 70\%$
- $D \geq 60\%$
- $F < 60\%$

Academic dishonesty / plagiarism means the **failed class**.



# Preparation to exams

- Download and go through all lecture slides / study guide; clarify remaining questions with a textbook.
- Read everything what is listed in “For Further Reading” section.
- Try not only memorize this stuff, but also understand **how things work**.





# Course in general

## Course schedule



# Tentative course sequence: from past to present

- Origin of Earth, basic chemistry
- Origin of life, DNA, RNA and proteins
- First cells, structure of cell
- Animals
- Plants
- Reproduction
- Adaptation, rise and fall of dinosaurs
- Current life, humans, and the future evolution



# Intro test

## Multiple choice questions



# Question 1

- 1 Why do deciduous plants drop their leaves?
- A To prevent freezing
  - B To prevent drying
  - C To get rid of poisonous chemicals



## Question 2

2 Where does human digestion process start?

- A In the mouth
- B In the intestines
- C In the stomach



# Question 3

3 Which birds do NOT live in Minot on winter?

- A Crows
- B Hummingbirds
- C Sparrows



# Question 4

4 Home country of watermelon:

- A Central America
- B Canada
- C South Africa



# Question 5

- 5 Why do insectivorous plants eat insects?
- A To obtain the lacking mineral resources
  - B To get an addition to their common “menu”
  - C To get rid of herbivores





# Question 6

6 Which insects have no queen?

- A Bumblebees
- B Ants
- C Cockroaches



# Question 7

7 Oak tree is pollinated by:

- A Wind
- B Bees
- C Flies



# Question 8

8 Spider has:

- A 6 legs
- B 8 legs
- C 4 legs



# Question 9

9 Apple flower has:

- A 5 petals
- B 4 petals
- C 3 petals



# Question 10

10 Frightened man has:

- A Bigger pupils
- B Smaller pupils
- C Normal pupils



# Question 11

- 11 Polar bears are not eating penguins because:
- A Penguins run very fast
  - B They cannot meet
  - C Penguins are poisonous for bears



# Question 12

12 How many toes are on each of cat's hind legs?

- A 5
- B 4
- C 3



# Question 13

13 Pineapple is a:

- A Tree
- B Shrub
- C Herb





# Question 14

14 If somebody has an artery cut on the arm or leg, it is recommended:

- A Put a tight bandage below the cut
- B Put a tight bandage above the cut
- C Do nothing



# Question 15

- 15 Which of the following is the most precise statement?
- A We are breathing to support our life
  - B We are breathing to obtain the energy from food
  - C We are breathing to have enough strength for food consuming



# Question 16

16 Which tree is better to plant in Minot house backyard:

- A Sycamore
- B Ash
- C Yew



# Question 17



17 Moles eat:

- A Worms
- B Roots
- C Frogs



# Question 18

18 Which fish gives birth to the fully developed offspring?

- A Sturgeon
- B Shark
- C Flounder



# Question 19

19 Which human organ lives longer?

- A Heart
- B Lungs
- C Brains



# Question 20

20 Which plant normally has a longer root?

- A Spruce
- B Chokecherry
- C Blueberry



# The key

1B; 2A; 3B; 4C; 5A; 6C; 7A;  
8B; 9A; 10A; 11B; 12B; 13C;  
14B; 15B; 16B; 17A; 18B; 19A;  
20B

Please calculate a sum (every right answer = 1 virtual point)





# Summary

- Please download syllabus from the Web site  
([http://ashipunov.info/shipunov/school/biol\\_111](http://ashipunov.info/shipunov/school/biol_111))
- **Five** exams, best **four** will be counted, **no make-ups**
- Again, no make-ups!
- The course sequence is the history of life on Earth



# For Further Reading



History of Life. Wikipedia.

[http://en.wikipedia.org/wiki/History\\_of\\_life](http://en.wikipedia.org/wiki/History_of_life)



Key for the Diversity and History of Life (a.k.a. “textbook”)

[http://ashipunov.info/shipunov/school/biol\\_111/  
ph\\_key/ph\\_key.pdf](http://ashipunov.info/shipunov/school/biol_111/ph_key/ph_key.pdf)

