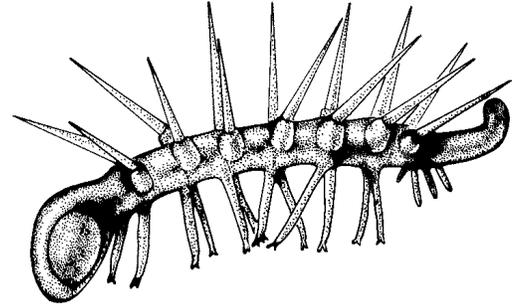


# BIOL 111 — Concepts of Biology (4 credits)

Alexey Shipunov\*

Fall 2012



## SYLLABUS

**Class Dates** : August 27 to December 17, 2012

### 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.

**Instructor** : Dr. Alexey Shipunov

**Office** : Moore 229

**Office Hours** : Mondays, Wednesdays and Fridays, 11 am to 12 am (just before the lecture)

**Phone** : 858-3116

**E-mail** : alexey.shipunov@minotstateu.edu

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

**Laboratories** :

BIOL	Section	Instructor	Class	Start	End	Day	Room
111	111-1	Ihli, Lori	11277	10:00 am	11:50 am	Mo	Swain 304
111	111-2	Keller, Chris	11280	1:00 pm	2:50 pm	Mo	Swain 304
111	111-3	Ihli, Lori	11281	8:00 am	9:50 am	Mo	Swain 304
111	111-4	Super, Heidi	11282	10:00 am	11:50 pm	We	Swain 304
111	111-6	Keller, Chris	11287	1:00 pm	2:50 pm	We	Swain 304
111	111-8	Ihli, Lori	11289	8:00 am	9:50 am	We	Swain 304
111	111-11	Ihli, Lori	11952	3:00 pm	4:50 pm	We	Swain 304

If you have a legitimate reason (see below) it is possible to come for the lab with different section. Please, however, do not forget to inform **both** instructors in advance. Their e-mails:

\*Links in this PDF are *active*, you may click on them.

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Ihli, Lori	ihlilori@hotmail.com
Keller, Chris	christopher.keller@minotstateu.edu
Shipunov, Alexey	alexey.shipunov@minotstateu.edu
Super, Heidi	heidi.super@minotstateu.edu

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Only these four instructors teach our Intro labs. There is a separate Biol 111 course with different instructor; please do not come to these sections.

**Textbook** : **None**. Instead, for every lecture I will give a list of readings, mostly from Wikipedia.

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

**Grading** :

Five **equal** exams are given during the semester. Only the **four best exams** contribute to the final grade. Missed exams count zero points. There are **absolutely no make-up** exams.

Absence from exams or laboratories needs to be announced to the instructor in advance. There are five legitimate reasons for absence: (1) emergency situations, (2) attested medical conditions, (3) military duty, (4) participation in MSU sports events, and (5) dependent sick leave. I strongly recommend to attend lectures regularly.

Receiving zero points for more than one laboratory results in a failed course. Grading of laboratories is based on reports. Written reports are prepared and finished during laboratory sessions and passed to the instructor right after the particular laboratory session.

A total of  $\approx 420$  points can be earned and are distributed as follows (grading points may vary):

**Four best exams** :  $\approx 240$  points

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

**Letter Grades** :  $A \geq 90\%$ ,  $B \geq 80\%$ ,  $C \geq 70\%$ ,  $D \geq 60\%$ ,  $F < 60\%$ . A minimum of one letter grade will be deducted from the grade for academic dishonesty / plagiarism.

**Tentative Course Schedule** (subject to change!):

Week 1	Aug 27, 29	4,500 Mya*	Origin of Earth – Intro test – Scientific methods – Basic chemistry; no lab
Week 2	Sep 3, 5	3,850 Mya	Origin of life – Proofs of evolution – RNA, proteins, DNA and membranes; no lab
Week 3	Sep 8, 10	2,400 Mya	First life; <i>Lab 1: Science and scientific method</i>
"			<b>1 exam: Sep 12</b>
Week 4	Sep 15, 17, 19	1,800 Mya	First life, oxygen revolution, prokaryotic cell – Photosynthesis; <i>Lab 2: Microscope and cells</i>
Week 5	Sep 22, 24, 26	"	Eukaryotes and symbiogenesis, Precambrian life – Structure and function of cell, mitosis; <i>Lab 3: Osmosis and statistics</i>
Week 6	Sep 29, Oct 1, 3	650 Mya	Multicellular life, Ediacarian biota – Tissues; <i>Lab 4: Photosynthesis and respiration</i>
Week 7	Oct 6	550 Mya	Cambrian explosion; no lab
"			<b>2 exam: Oct 10</b>
Week 8	Oct 13, 15, 17	460 Mya	Animal diversity, organs and organ systems; <i>Lab 5: Cell craft game</i>
Week 9	Oct 20, 22, 24	400 Mya	Invertebrate and vertebrate phylogeny – The body of chordates; no lab
Week 10	Oct 27, 29, 31	400 Mya	Plants are going terrestrial – Structure and function of plants; <i>Lab 6: Sensitive plant</i>
Week 11	Nov 3, 5	150 Mya	Major groups of plants – Reproduction, genetics and inheritance; <i>Lab 7: Genetics and inheritance</i>
"			<b>3 exam: Nov 7</b>
Week 12	Nov 10, 12, 14	65 Mya	Vertebrates are going terrestrial – Prey and predator interactions; <i>Lab 8: Population growth and predator-prey cycles</i>
Week 13	Nov 17, 19, 21	125 Mya	Seed and seed plants; origin of dinosaurs — Ecology and evolution; <i>Lab 9: Plant diversity—dichotomous keys</i>
Week 14	Nov 24, 26	23 Mya	Jurassic park – Diversity of tetrapods; <i>Lab 10: "Evolution. The origin of species" board game</i>
"			<b>4 exam: Dec 1</b>
Week 15	Dec 3, 5	3 Mya	Mass extinctions – Natural selection and speciation; <i>Lab 11: Animal diversity—creating a phylogeny</i>
Week 16	Dec 8, 10, 12	0.25 Mya	Age of beasts – Main biomes on Earth; <i>Lab 12: Natural selection</i>
			<b>5 exam: Dec 17</b> 12:00–12:50 Moore 16

\* “Mya” stands for “million years ago”.