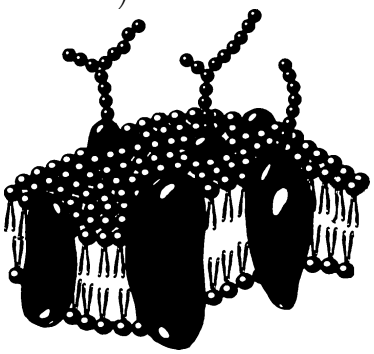
BIOL 250 —Advanced Cell Biology (4 credits)



Alexey Shipunov

Spring 2012

SYLLABUS

Class Dates : January 11 to May 8, 2011

Course Description :

Advanced Cell Biology will penetrate the field of cellular and molecular biological sciences deeper than Introductory Cell Biology (which is a prerequisite to the Biology 250). The course is based on the presumption that students already know basics of cell biology and biochemistry. In turn, several higher-level courses are based on Advanced Cell. Therefore, I will concentrate on topics which are most important for general understanding of cell structure and functions: chemical components of cell including DNA and protein structure and interactions; genes and genomes analysis and evolution; membrane structure, transport and cell communication.

Instructor : Dr. Alexey Shipunov

Office : Moore 229

Office Hours : Wednesdays and Fridays, 9 a.m. to 12 a.m.

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Lectures : Mondays, Wednesdays and Fridays, 12:00 a.m. to 12:50 a.m., Moore 210

Textbook : Alberts, B. et al. Essential Cell Biology. 3rd edition. Garland Science, 2009.

Laboratories : Mondays 1:00 p.m. to 2:50 p.m. (BOIOL 250-2) and Mondays 3:00 p.m. to 4:50 p.m. (BIOL 250-1), Moore 210

Grading :

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

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. Absence from exams or laboratories needs to be announced to the instructor in advance. I strongly recommend to attend lectures regularly since lectures are the main reference text.

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.

In addition, at the end of every lecture I will give one short test question to answer.

A total of 600 points can be earned and are distributed as follows (grading points may vary):

Lecture tests : 60 points (1–3 points per question)

Three best exams : 300 points

Laboratories : 240 points (20 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	Jan 11, 13	Introduction to cells, microscopy; no lab
Week 2	Jan 18, 20	Chemical components of cells; no lab
Week 3	Jan 23, 25, 27	Chemical components of cells; Lab 1
Week 4	Jan 30, Feb 1	Chemical components of cells; Lab 2
"		1st exam: Feb 3
Week 5	Feb 6, 8, 10	Energy, catalysis and biosynthesis; Lab 3
Week 6	Feb 13, 15, 17	Protein structure and function; Lab 4
Week 7	Feb 22, 24	From DNA to protein; no lab
Week 8	Feb 27, Feb 29	From DNA to protein; Lab 5
"		2nd exam: Mar 2
Week 9	Mar 5, 7, 9	Gene expression; Lab 6
Week 10: Spring break		
Week 11	Mar 19, 21, 23	Analyzing genes and genomes; Lab 7
Week 12	Mar 26, 28, 30	Membrane; Lab 8
Week 13	Apr 2, 4	Membrane; Lab 9
Week 14	Apr 11, 13	Intercellular transport; no lab
Week 15	Apr 16, 18	Review; Lab 10
"		3rd exam: Apr 20
Week 16	Apr 23, 25, 27	Cell communication; Lab 11
Week 17	Apr 30, May 2, 4	Cell communication; Lab 12
Week 18		4th exam: Tuesday May 8, 12:00–12:50 a.m.