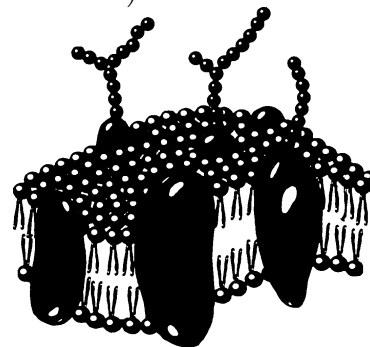


BIOL 250 —Advanced Cell Biology (4 credits)

Alexey Shipunov

Spring 2011



SYLLABUS

Class Dates : January 12 to May 12, 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 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, 10 a.m. to 12 a.m.

Phone : 858-3116

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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 12, 14	Introduction to cells, microscopy; no lab
Week 2	Jan 19, 21	Chemical components of cells; no lab
Week 3	Jan 24, 26, 28	Chemical components of cells; Lab 1
Week 4	Jan 31, Feb 2	Chemical components of cells; no lab
"		1st exam: February 4th
Week 5	Feb 7, 9, 11	Energy, catalysis and biosynthesis; Lab 2
Week 6	Feb 14, 16, 18	Protein structure and function; Lab 3
Week 7	Feb 23, 25	From DNA to protein; no lab
Week 8	Feb 28, Mar 1	From DNA to protein; Lab 4
"		2nd exam: March 4th
Week 9	Mar 7, 9, 11	Gene expression; Lab 5
<i>Week 10</i>		<i>Spring break</i>
Week 11	Mar 21, 23, 25	Analyzing genes and genomes; Lab 6
Week 12	Mar 28, 30, Apr 1	Membrane; Lab 7
Week 13	Apr 4, 6, 8	Membrane; Lab 8
Week 14	Apr 11, 13, 15	Intercellular transport; Lab 9
Week 15	Apr 18	Review; Lab 10
"		3rd exam: April 20
Week 16	Apr 27, 29	Cell communication; [Lab 11 to cover on lectures]
Week 17	May 2, 4, 6	Cell communication; Lab 12
Week 18		4th exam: Thursday May 12, 12:00–12:50 a.m.