

Spring Semester 2009
BRTP-823 (Unit 3), Molecular Cell Biology (2 credit hours)
Steven H. Caplan, Ph.D. and Neena Haider, Ph.D., Course Coordinators
DRC 1004 (unless otherwise specified)
3:00 - 4:00 p.m., Monday to Friday
Exams: 2:00 to 5:00 p.m. (see below for room assignment)

Description: This course provides the fundamental concepts for understanding genetic analysis and cell function. The relationships between cellular functions and their biochemistry are examined in energy production, membrane transport, protein secretion, cytoskeleton structure, and cell specification.

Last date to drop class: January 30, 2009

Lecture Schedule

Week	Day	No.	Lecture Topic	Hartwell Chapter	Lecturer	Room
1	1/12	1	Introduction to Genetics	1, 2	Haider	ESH 3010
	1/13	2	Genome Variation	7,11, 22.1-22.3	Haider	DRC 1004
	1/14	3	Genetics and Disease	3.1,5, 11.3	Haider	DRC 1004
	1/15	4	Complex Genetics I	3.2, 21	Gould	DRC 1004
	1/16	5	Complex Genetics II	11.4-11.5, 21	Gould	DRC 1004
2	1/19		No Class – Martin Luther King Day			
	1/20	6	Functional Genomics	18	Haider	DRC 1004
	1/21	7	Epigenetics	20	Gould	DRC 1004
	1/22	8	Genetic Manipulations & Model Systems I	20	Gould	DRC 1004
	1/23	9	Genetic Manipulations & Model Systems II	10	Gould	DRC 1004
				Alberts Chapter		
3	1/26	10	Informatics	*	Haider	DRC 1004
	1/27	11	Cellular Energetics I	14	Batra	DRC 1004
	1/28	12	Cellular Energetics II	14	Batra	DRC 1004
	1/29	13	Cellular Energetics III	14	Batra	DRC 1004
	1/30	14	Cellular Energetics IV	14	Batra	DRC 1004
4	2/2		EXAMINATION I (Lectures 1-14)		2-5 p.m.	DRC 1002
	2/3	15	Membrane Transport I	11	Mehta	DRC 1004
	2/4	16	Membrane Transport II	11	Mehta	DRC 1004
	2/5	17	Microtubules-Structure and Dynamics	16	Mehta	DRC 1004
	2/6	18	Kinesin, Dynein, Intracellular Transport	16	Mehta	DRC 1004

Week	Day	No.	Lecture Topic	Alberts Chapter	Lecturer	Room
5	2/9	19	Molecular Motors	16	Mehta	DRC 1004
	2/10	20	Vesicular Transport I	13	Caplan	DRC 1004
	2/11	21	Vesicular Transport II	13	Caplan	DRC 1004
	2/12	22	Vesicular Transport III	13	Caplan	DRC 1004
	2/13	23	Cell-Cell Adhesion and Communication	19	Joshi	DRC 1004
6	2/16	24	Cell Matrix Adhesion	19	Joshi	DRC 1004
	2/17	25	Collagen and Non-Collagen Components	19	Joshi	DRC 1004
	2/18	26	The Actin and Myosin-Structure and Dynamics	16	Lu	DRC 1004
	2/19	27	Actin and Myosin in Muscle Cells	16	Lu	DRC 1004
	2/20	28	Actin and Myosin in Non-Muscle/Cell Locomotion	16	Lu	DRC 1004
7	2/23		EXAMINATION II (Lectures 15-28)		2-5 p.m.	DRC 1002

* The instructors will provide the information on the reading materials.

Course Co-directors:

Dr. Steven Caplan, BMB, DRC 7013, 9-7556, Zip 5870, SCAPLAN

Dr. Neena Haider, GCBA, DRC 6008, 9-6123, Zip 5805, NHAIDERN

Lecturers

Dr. Surinder Batra, BMB, DRC 7052, 9-5455, Zip 5870, SBATRA

Dr. Karen Gould, GCBA, DRC 6051, 9-2456, Zip 5805, KAGOULD

Dr. Shantaram Joshi, GCBA, WH 2015, 9-4165, Zip 6395, SSJOSHI

Dr. Runqing Lu, DRC 6009, 9- 8307, Zip 5805, RLU

Dr. Parmender Mehta, BMB, DRC 7010, 9-3826, Zip 5870, PMEHTA

Last date to add class: January 14, 2009

Last date to drop class: January 30, 2009

Textbook and Resources

The official text for the genetics section of the course is **Genetics From Genes to Genomics** by Leland H. Hartwell et al., 3rd edition. The students will be provided with supplemental reading material and/or online resources. For the cell biology based section of the course, the official textbooks are: **Biochemistry** by Mathews and van Holde, 3rd edition, and **Molecular Cell Biology** by Lodish et al., 5th edition. However, students may find that Molecular Biology of the Cell by Alberts et al., 4th edition, or other textbooks may suffice as a suitable resource for supplemental reading assignments. Students are encouraged to become familiar with and utilize the resources of the UNMC Leon S. McGoogan Library of Medicine, especially the current literature holdings. Individual faculty may make library assignments and/or provide relevant study problems and questions which may require use of the library. Further, students are encouraged to seek individual assistance as needed from the participating faculty.

Lectures/Problem Solving/Review

Lectures will be given according to the attached schedule. On occasion, and at the mutual consent and convenience of both the students and faculty, problem solving and/or review sessions outside of the normal class schedule may be arranged.

Evaluation

There will be two examinations during the course, each accounting for 50% of the final grade. The examinations will consist predominantly of subjective, discussion-type questions in which students will be expected to apply their knowledge, often to research-oriented problems. Mastery and use of the material presented in the lectures, the textbook and other reading assignments will be expected. Students will be expected to complete the exams in the allotted time. There will be no make-up exams for unexcused absences.

Grading Policy

The University of Nebraska guidelines for assigning final letter grades are detailed in the table below. For BRTP 823, these guidelines represent the minimum letter grade associated with a particular percentage score (e.g. A score of 80% will yield a letter grade of **at least B-**; however, the scale may be adjusted such that an 80% might result in a higher letter grade).

A+ 97-100%	A 93-96%	A- 90-92%
B+ 87-89	B 83-86	B- 80-82
C+ 77-79	C 73-76	C- 70-72
D+ 67-69	D 63-66	D- 60-62
F ≤ 59		

Students enrolled in this course are expected to adhere scrupulously to the Standards of Academic Integrity outlined in the UNMC Student Handbook under Standards of Student Academic Performance. Cheating, academic misconduct, fabrication and plagiarism are viewed as serious matters. Any student found to be cheating on an examination will receive a “0” for that examination and will be referred to the Dean for Graduate Studies and Research for appropriate disciplinary action as described in the UNMC Student Handbook under Procedural Rules Relating to Student Discipline.

Grading Appeals: Students may discuss exam questions with course faculty at any time after the exams have been returned. Student requests for faculty to re-evaluate grading of a specific answer will be restricted to a period of 2 weeks after the exams have been returned to the class. Students should note that course faculty reserve the right to increase OR decrease a given score if asked to re-examine an exam.

Attendance

Students must attend all lectures. If a student is unable to attend a particular lecture, he/she should provide an acceptable excuse in a timely manner to the course coordinator.