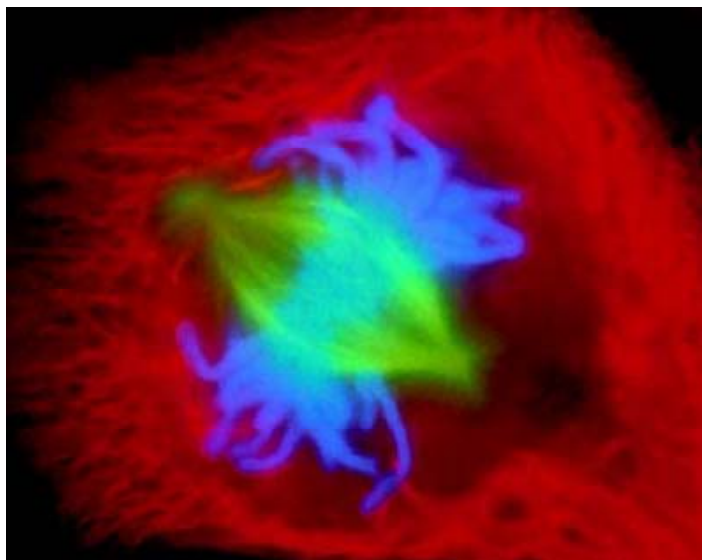


**ZOO/MBIO/BOT 3113, section 001**

# ***Cell Biology***

***Fall, 2008***



## **Instructor**

Dr. Randy Hewes  
Associate Professor of Zoology (OU)  
Adjunct Associate Professor of Cell Biology (OUHSC)  
Email: [hewes@ou.edu](mailto:hewes@ou.edu)

## **Time & Place**

10:30-11:20 am M/W/F in George Lynn Cross 123.

## **Prerequisites**

ZOO 1114 or BOT 1114 and CHEM 3013 or CHEM 3053

## **Office Hours**

Stephenson Research and Technology Center room 2021  
Monday 1-3 pm & Wednesday/Friday 2-4 pm

## **Teaching Assistants (TAs)**

We have two undergraduate TAs, Brian Peck and Charles Maloy. They will be available to answer questions and assist with grading, class logistics, and review sessions.

## **Textbook and Readings**

There are two alternative textbooks. Students should choose only one of the two. Essential Cell Biology (2<sup>nd</sup> edition, "ECB"), by Alberts *et al* will cover everything that I expect students to learn from the readings. Molecular Biology of the Cell (5<sup>th</sup> edition, "MCB") is by the same authors. It contains the information found in ECB, but it goes into more depth on many topics.

I recommend MCB if you: (1) plan to seek a graduate or medical degree and who would like to keep it as a general reference text, and (2) would like more challenging reading. Unless presented in lecture, I will not expect students to know material that is found only in MCB.

Please refer to the calendar below for the reading assignments. To get the most out of lecture, you should do the assigned reading before you come to class, and then you should review the sections that we covered after lecture.

## **Problem Sets**

I will provide regular problem sets for you to emphasize key concepts. These will not be graded. They are a great way for you to learn some of the material, and they should help you to perform better on the exams.

## **Grading**

I grade on a letter scale, with plusses and minuses. I will use the plusses and minuses to calculate your final grade for the course, but only a letter grade (without a + or -) will be reported on your transcript. Based on past trends, I expect 20% of the class to receive A's, 30% B's, 35% C's, and 15% D's and F's. However, I assign grade cutoffs based on my assessment of student understanding and overall class performance, and these percentages are only a rough estimate. I will post grades on D2L.

## **Grade Percentages**

Weekly quizzes:	15%
Exam 1:	20%
Exam 2:	20%
Exam 3:	20%
Final Exam:	25%
Total	100%

These percentages may change depending on changes in the course schedule, etc. Unless stated otherwise, each quiz will count equally to the total score for the semester.

## **Extra credit**

Unless announced in class, no extra credit will be given.

## Online Content

ZOO/BOT/MBIO 3113 Web Site:

<http://www.eDrosophila.com/3113.htm>. I use this site to post a few course-related items, such as a FAQ and the honor roll. However, most material is posted on D2L.

D2L: <http://learn.ou.edu>. I will use this site to post grades, assignments, class notices, and other material. If you have trouble using D2L, please refer to the Student Help section on the D2L home page.

## Policy on Cell Phones and Electronic Devices

I expect professionalism in class. This means that phones must be turned off or set to silent before class begins, and they must not be used for texts or calls during class except in the case of a true emergency.

The use of laptops and other related devices is not allowed in class without prior approval.

Students found using cell phones or other electronic devices during quizzes or exams will be excused from the classroom and will receive a failing grade on that quiz or exam. For some exams and quizzes, I may announce that it is OK to use calculators. However, in that case, only non-programmable calculators will be allowed.

## Visitors

Visitors are permitted in class only with prior instructor approval; this includes children and other family members.

## Lecture Notes

You should attend class and take detailed notes on what is discussed in lecture. If you must miss a class, for any reason, please arrange with a friend to find out what was covered. I will not be posting lecture notes on D2L.

## Exams

Please bring a #2 pencil and your OU student ID with you for all exams. Exams during the term will usually concentrate on material covered after the previous exam. However, some concepts build upon earlier ones, and anything covered prior to an exam will be considered fair game. The final exam will be comprehensive. Answers will be posted after class on D2L.

## Final Examination Conflicts and Multiple Exams

If you have more than two final examinations in one day, or if you have a second final exam scheduled at the same time as the final exam for this course, see [http://www.ou.edu/enrollment/home/final\\_exams.html](http://www.ou.edu/enrollment/home/final_exams.html) for the OU policies. In almost all cases, one of your other

instructors will need to provide an alternative time for you to take their final exam. For example, if you have three or more final exams on the same day, the instructor(s) giving the third and subsequent exams must provide make-up exams during finals week. If you have two or more final exams scheduled at the same time, you should attend the exam for the class that met first during the week, according to your class schedule, and the other instructor(s) must provide make-ups. You must inform your instructor of these conflicts before the end of the 12<sup>th</sup> week of classes.

## Re-grades

If you believe that one of your exams or quizzes may have been graded incorrectly, then you should see me within two weeks to ask for a re-grade. For the final exam, you should see me within 5 days after I have posted the final exam grades. I will not consider grade protests after these deadlines.

## Make-up Policy

No make-up examinations or quizzes will be given. The only exceptions to this policy will be for absences due to Provost-approved, university-sponsored activities or for legally required activities. Documentation of such exceptions must be provided to me beforehand, and then the student's course grades (except in the case of a missed final exam) will be prorated.

## Academic Misconduct

The following statement on academic misconduct is from the OU Student's Guide to Academic Integrity, at: [www.ou.edu/provost/integrity/](http://www.ou.edu/provost/integrity/).

"Academic integrity means honesty and responsibility in scholarship. Professors have to obey rules of honest scholarship, and so do students. Here are the basic assumptions about academic work at the University of Oklahoma:

- (1) Students attend OU in order to learn and grow.
- (2) Academic assignments exist for the sake of this goal.
- (3) Grades exist to show how fully the goal is attained.
- (4) Thus, all work and all grades should result from the student's own effort to learn and grow. Academic work completed any other way is pointless, and grades obtained any other way are fraudulent.

Academic integrity means understanding and respecting these basic truths, without which no university can exist. Academic misconduct – 'cheating' -- is not just 'against the rules.' It violates the assumptions at the heart of all learning. It destroys the mutual trust and respect that

should exist between student and professor. Finally, it is unfair to students who earn their grades honestly.”

For the above reasons, all graded work should be your own, unless I indicate that collaboration is allowed on a specific assignment. It is your responsibility to make sure that you have read and understand the University of Oklahoma academic misconduct policy. Any evidence of academic misconduct will be dealt with as specified by the OU policy.

### **Administrative Drops**

Students who do not attend class during the first week and who do not contact me with a clear explanation for their absence (e.g., illness) may be dropped from the course by administrative action.

### **Course Withdrawals and Audits**

I follow the OU grading policies for withdrawals and audits. This means that if a student is failing the course, and the deadline for withdrawal with an automatic W has passed, I will record a grade of F on the drop slip. After the deadline for dropping a course without a grade has passed, I do not approve audit requests by students who have initially enrolled in this course for credit.

### **Reasonable Accommodation**

The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course should contact me as early in the semester as possible and may arrange to see me confidentially to discuss their needs. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405-325-3852 or TDD only 405-325-4173.

### **Religious Holidays**

It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

### **3113 Honor Roll**

The names of the student(s) with the top overall score in this course earn a place on the Cell Biology 3113 Honor Roll. These students have the option of remaining anonymous, if they prefer. In addition to the listing here, the honor roll is on my web site at:

[www.edrosophila.com/3113honors.htm](http://www.edrosophila.com/3113honors.htm)

### *Honorees*

2006, Daniel Corbett  
2005, Jerrod Hampton  
2004, Justin Hire (TA for Cell in 2005)  
2003, Michael Johnson  
2002, Reeve Bull (TA for Cell in 2003)

### *Honorable mentions*

2006, Amanda Ward and Amanda Ashby  
2005, John McGurk and Neda Nikpoor  
(TA for Cell in 2006)  
2004, Aaron Southerland  
2003, Ashley Dodd (TA for Cell in 2004)  
2002, Terry Grigg

*Page 1 photo credit: Cell in metaphase, image from “Exploring the Cell” from the American Society for Cell Biology, by Conly Rieder and Cynthia Hughes.*

## Course Calendar

This schedule is tentative and is subject to change. Additional graded material and/or assignments may be announced in class and on D2L. Unless indicated, readings are from the textbook, and readings and problem sets should be done before the period for which they are listed. ECB=Essential Cell Biology, MBC=Molecular Biology of the Cell.

<u>Period</u>	<u>Date</u>	<u>Topic</u>	<u>PS/Quiz</u>	<u>Readings (ECB)</u>	<u>Readings (MBC)</u>
1	25-Aug-2008	Course Introduction & Introduction to Cells (review)		Chapter 1	Chapter 1
2	27-Aug-2008	Macromolecules: Proteins		Chapter 2	Chapter 2 (but not pp. 88-103), pp. 125-156
3	29-Aug-2008	Macromolecules: DNA and Polysaccharides		pp. 119-150, 168-177	pp. 125-152, 194-207
	1-Sep-2008	<i>Labor Day Holiday</i>		---	---
4	3-Sep-2008	Organelles review, and Free Energy		pp. 82-100	pp. 65-87
5	5-Sep-2008	Enzymes and Catalysis	PS1, Quiz 1	pp. 100-118	pp. 157-193
6	8-Sep-2008	Enzyme Kinetics		pp. 150-167	"
7	10-Sep-2008	Membrane Structure		pp. 365-374	pp. 616-629
8	12-Sep-2008	Membrane Proteins	PS2, Quiz 2	pp. 374-388	pp. 629-650
9	15-Sep-2008	Passive Transport		pp. 389-395	pp. 651-654
10	17-Sep-2008	Active Membrane Transport		pp. 395-402	pp. 654-666
11	19-Sep-2008	Membrane Potentials	PS3, Quiz 3	pp. 403-410	pp. 667-676
12	22-Sep-2008	Nerve and Muscle Cell Action Potentials		pp. 411-425	pp. 676-694
13	24-Sep-2008	Chemical Messengers: Hormones and Synapses		pp. 532-546	pp. 879-905
14	26-Sep-2008	Intracellular Signaling: GPCRs	PS4	pp. 546-550	"
15	29-Sep-2008	<b>FIRST EXAM</b>		---	---
16	1-Oct-2008	Second Messengers: cAMP and IP <sub>3</sub>		pp. 550-557	pp. 905-964
17	3-Oct-2008	Second Messengers: Ca-Cam, RTKs, and NO		pp. 557-571	"
18	6-Oct-2008	Extracellular Matrix		pp. 697-709	Chapter 19
19	8-Oct-2008	Cell Junctions	PS5, Quiz 4	pp. 709-726	"
	10-Oct-2008	<i>Texas Friday Holiday</i>		---	---
20	13-Oct-2008	Secretory Pathway		pp. 496-512	Chapter 12
21	15-Oct-2008	Endocytosis, Exocytosis, Lysosomes, Peroxisomes		pp. 512-531	Chapter 13
22	17-Oct-2008	Glycolysis and Fermentation	PS6, Quiz 5	Chapter 13	pp. 88-103
23	20-Oct-2008	TCA Cycle and beta-Oxidation		"	"
24	22-Oct-2008	Electron Transport System		pp. 453-477	pp. 813-840, 856-878

25	24-Oct-2008	ATP Synthesis	PS7	"	"
26	27-Oct-2008	<b>SECOND EXAM</b>		---	---
27	29-Oct-2008	Photosynthesis		pp. 478-495	pp. 840-856
28	31-Oct-2008	Microtubules		pp. 572-584	pp. 965-991
29	3-Nov-2008	Microfilaments and Intermediate Filaments		pp. 591-600	"
30	5-Nov-2008	Microtubule Motors		pp. 584-591	pp. 992-1052
31	7-Nov-2008	Myosin Motors	PS8, Quiz 6	pp. 600-609	"
32	10-Nov-2008	Cell Cycle		pp. 610-616, pp. 637-658	Chapter 17
33	12-Nov-2008	Cell Cycle Checkpoints and Growth Factors		pp. 616-625, 628-636	"
34	14-Nov-2008	Meiosis and Apoptosis	PS9, Quiz 7	pp. 625-628, Chapter 20	Chapters 18, 21
35	17-Nov-2008	DNA Structure		pp. 177-194	pp. 208-245
36	19-Nov-2008	DNA Replication		pp. 195-208	pp. 263-295
37	21-Nov-2008	DNA Repair and Cancer	PS10	pp. 209-214, pp. 726-740	pp. 295-304, Chapter 20
38	24-Nov-2008	<b>THIRD EXAM</b>		---	---
	26-Nov-2008	<i>Thanksgiving Holiday</i>		Read Chapter 10 (optional, but good information)	Read Chapters 8-9 (optional, but good information)
	28-Nov-2008	<i>Thanksgiving Holiday</i>		---	---
39	1-Dec-2008	Transcription		pp. 228-236	pp. 329-345
40	3-Dec-2008	RNA Processing and the Genetic Code		pp. 236-248	pp. 345-366
41	5-Dec-2008	Translation	PS11, Quiz 8	pp. 248-265	pp. 366-400 (400-410 is optional)
42	8-Dec-2008	Transposition and Recombination		pp. 215-227, Chapter 9	pp. 245-262, 304-328
43	10-Dec-2008	Promoters and Enhancers		Chapter 8	Chapter 7
44	12-Dec-2008	Transcription Factors	PS12	"	"
45	18-Dec-2008	<b>Final Exam, 8-10 am, GLC 123</b>			