

Biology 212, Section 1, Spring 2015

Principles of Biology II

Text: Biological Science, 5th ed. by Scott Freeman, et al., Pearson publishers

Reading assignments will be announced in lecture and posted on Blackboard. Material to read and study outside of class in preparation for classroom discussions will be assigned.

Student Learning Outcomes / Course Goals:

1. Students will achieve fundamental understanding of basic biological concepts and processes at the cellular, molecular and organismal levels.
2. Students should be able to interpret graphs and figures and apply that information to fundamental concepts in biology.
3. Students should be able to graphically represent experimental data in a meaningful way.
4. Students should be able to formulate a hypothesis and then design experiments that test that hypothesis.
5. Students should be able to take information learned in one context and transfer/apply it to a different context.
6. Students will gain an appreciation for the Nature of Biological Science:
 - a. Scientific methods used in biology.
 - b. Relevance of biological science to society and quality of life.
 - c. Science is iterative and our understanding changes over time as new technologies and information become available.

Clickers: You are required to purchase a Turning Point Clicker for use in this class. If you already have one from a different class or different term, it can be used in this class. We will use these for in class activities, some may be unannounced. Clicker points will not be recorded for the first week.

[http://www.celt.iastate.edu/elearning/?page_id=456 - students](http://www.celt.iastate.edu/elearning/?page_id=456-students)

Blackboard: will be used to report grades and post other class materials. To access Blackboard, go to the Iowa State Homepage (<http://www.iastate.edu>), and click on the Blackboard link in the top panel. To login, enter your NET ID (that part of your ISU e-mail address before @) and your e-mail password. Click on Biology 212-1 (Spring 2014).

For more information about Clickers and Blackboard see: [http://www.celt.iastate.edu/elearning/?page_id=456 - students](http://www.celt.iastate.edu/elearning/?page_id=456-students)

Exams: There will be 3 midterm exams and a final exam with two parts. Exams will test material covered in lecture, in assigned readings, and online materials. Your lowest midterm exam score will not be counted. There will be **no makeup exams**. If you have a legitimate conflict (scheduled hospitalization, ISU-sponsored sports event, educational trip, etc.) **you must make arrangements prior to the exam.**

Exams will be held at the Online Testing Facilities, Room 60 Carver Hall and 2552 Gilman Hall or other places, as announced: For each exam, there will be a four-day interval (Mon-Thurs) during which students can take the exam. The exams will be timed for three hours, but it should take you less than an hour for the exams. You will only get one try at each exam. Students must bring a photo ID to the testing center.

<http://www.elo.iastate.edu/online-testing-center/>

Exam 1- Opens 2/2; Due 2/5 (Covers: Origin of life, Membranes, Cells, Energy)

Exam 2- Opens 3/2; Due 3/5 (Covers: Respiration, Photosynthesis, Cell cycle, DNA synthesis, Transcription/Translation, Control of gene expression)

Exam 3- Opens 4/6; Due 4/9 (Covers: Cell-cell communication, Cell specialization, Development, Stem Cells, Endocrine signaling, Reproduction, Transport & Cardiovascular)

Final Part 1- Finals Week (Covers: Nervous system, Locomotion, Disease,, Bioinformatics, Biotechnology)

Part 2- Finals Week (Cumulative, covers the entire course)

Grading:

Exam Component

- | | | |
|-------------------|--|------------|
| • 3 Midterm exams | 100 points each | 300 points |
| • Final exam | 100 points over material since last exam | 200 points |
| | 100 points cumulative | |

Lowest midterm is dropped -100 points

Exam Total

400 points

Homework, Quizzes, Active Learning Exercises, Clicker Questions

- Daily in-class quizzes and outside homework **600 points**

Total points evaluated

1000 points

Note that 60% of the points in this course will be based on class activities and homework!! In-class activities encourage and reward your attendance in class, and they provide opportunities to work together to apply knowledge to new situations. We will begin collecting participation points on the second week of class, so get your clickers registered on Blackboard (see instructions below).

Please also note that if you get the flu or an infectious disease, Please do not come to class. We will drop everyone's two lowest clicker scores. Don't use up your free days, you get only two!

FINAL GRADING WILL BE BASED ON A CURVE. The approximate distribution of points in preceding semesters is as follows:

Grading Scale

20%	A
30%	B
35%	C
10%	D
5%	F

Academic Dishonesty: The class will follow Iowa State University's policy on academic dishonesty.

Anyone suspected of academic dishonesty will be reported to the Dean of Students Office.

<http://www.dso.iastate.edu/ja/academic/misconduct.html>

Disability Accommodation: Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. All students requesting accommodations are required to meet with staff in Student Disability Resources (SDR) to establish eligibility. A Student Academic Accommodation Request (SAAR) form will be provided to eligible students. The provision of reasonable accommodations in this course will be arranged after timely delivery of the SAAR form to the instructor. Students are encouraged to deliver completed SAAR forms as early in the semester as possible. SDR, a unit in the Dean of Students Office, is located in room 1076, Student Services Building or

online at www.dso.iastate.edu/dr/. Contact SDR by e-mail at disabilityresources@iastate.edu or by phone at 515-294-7220 for additional information.

Dead Week: This class follows the Iowa State University Dead Week policy as noted in section 10.6.4 of the Faculty Handbook <http://www.provost.iastate.edu/resources/faculty-handbook> .

Harassment and Discrimination: Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, [Student Assistance](#) at 515-294-1020 or email dso-sas@iastate.edu, or the [Office of Equal Opportunity and Compliance](#) at 515-294-7612.

Religious Accommodation: If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the [Dean of Students Office](#) or the [Office of Equal Opportunity and Compliance](#).

Contact Information: If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.

Class Schedule

Date	Topics	Readings
Jan 12	Origin of Life	Chap 1.1, 1.4, 1.5
Jan 14	Lipids and membranes	Chap 6
Jan 16	Lipids and membranes	
Jan 19	Martin Luther King Holiday	
Jan 21	Cells	Chap 7
Jan 23	Cells	
Jan 26	Energy and enzymes	Chap 8
Jan 28	Energy and enzymes	
Jan 30	Cellular respiration	Chap 9
Feb 2	Cellular respiration	
Feb 2-5	First Midterm exam (M-Th) (Covers: Origin, Membranes, Cells, Energy)	
Feb 4	Photosynthesis	Chap 10
Feb 6	Photosynthesis	
Feb 9	Cell cycle	Chap 12
Feb 11	Cell cycle	
Feb 13	DNA synthesis	Chap 15
Feb 16	DNA synthesis	
Feb 18	How genes work	Chap 16
Feb 20	Transcription and translation	Chap 17
Feb 23	Transcription and translation	
Feb 25	Control of gene expression	Chap 18
Feb 27	Cell-cell communication	Chap 11
Mar 2	Cell-cell communication	
Mar 2-5	Second Midterm exam (M-Th) (Covers: Respiration, Photosynthesis, Cell cycle, DNA synthesis, Transcription/Translation, Control of gene expression)	
Mar 4	Cell Specialization	Chap 22
Mar 6	Cell Specialization	
Mar 9	Development	Chap 23.3, 23.4, 24.1, 24.2
Mar 11	Stem Cells	
Mar 13	Endocrine signaling	Chap 49
Mar 16-20	Spring Break!!	
Mar 23	Reproduction	Chap 50
Mar 25	Reproduction	Chap 41
Mar 27	Transport & Cardiovascular	Chap 45
Mar 30	Transport & Cardiovascular	
Apr 1	Transport (plants)	Chap 38
Apr 3	Nervous system	Chap 46
Apr 6	Nervous system	

Apr 6-9	Third Midterm exam (M-Th) (Covers Cell-cell communication, Cell specialization, Development, Stem cells, Endocrine signaling, Reproduction, Transport & Cardiovascular)	
Apr 8	Nervous system	Chap 47.1, 47.2
Apr 10	Locomotion	Chap 48
Apr 13	Locomotion	
Apr 15	Disease	Chap 36.1, 36.2
Apr 17	Disease	Chap 51
Apr 20	Disease	Chap 40.7
Apr 22	Cancer	Chap 12.4
Apr 24	Bioinformatics & Computational Biology	Chap 21.4
Apr 27	Biotechnology	Chap 20.5, 20.6
Apr 29	Biotechnology	
May 1	<i>Science</i> Breakthrough of the Year, 2014	Blackboard readings
May 4-8	Final Exam (1 st half covers: Nervous system, Locomotion, Disease, Bioinformatics, Biotechnology, Breakthrough; 2 nd half is cumulative covering the entire course)	

