

Bio189 Section 2011
T/R 6:00-7:20
Fall 2013



Instructor: Amy Ziemba

Contact info:
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Email: aziemba@learnbiology.org

Phone: voicemail

Office hours: immediately after lecture
T/R 7:20-as needed

Also available prior to class if scheduled in advance

Will I pass this class?

Biology 189 is a fast-paced course that covers a large amount of material, including a substantial amount of scientific vocabulary.


Students who:

- a. have little background in biology;
- b. score < 80 on the reading placement test
- c. or score below 2.25 on the BIOL 189 Preparedness Exam

-should give serious consideration to taking BIOL 095 first

A delayed section of BIOL 095 will begin **Friday Sept 20**. Students may transfer with no additional fees other than the textbook.

To transfer to Biol 095:
Call the Department of Biological Sciences at (702) 651-5973.
DO NOT drop BIOL 189 through registration.



Websites:

<http://ziemba.learnbiology.org/>

- 1) Obtain copies of the syllabus and lecture schedule
- 2) Obtain lecture outlines and utilize study aids


CANVAS:

There is a CANVAS site that has been set up specifically BIOL 189.
<http://onlinecampus.csn.edu/default.asp>
To log on you will need:

Username = Your 10 digit NSHE ID (e.g. 0123456789).
Password = your birth date, YYMM

You will need to access this site to:

- 1) Access all laboratory material
- 2) Check your grades
- 3) Check announcements



Your success depends upon attendance
-no "make-up" lectures


Pass rate...
-pass rate significantly improves with attendance

Cheating, absolutely, positively, absolutely NOT TOLERATED

Turn off phones!! No texting, no surfing.
-considered cheating if caught with a phone during exam

No food, caffeine is encouraged

Don't bring text book, is your study tool
Must bring lab manual to lab



How do you study for this class?

- Ask questions when you don't understand

- **Take notes on printouts available online**

Learnbiology.org study materials

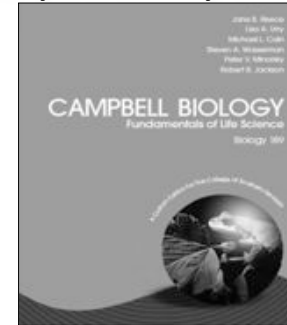
Posted the weekend before each week's lectures

Class notes are outlines for you to bring and label during lecture

Can print 200 pages for free on campus

- **Review material every weekend, don't fall behind**

How do you study for this class?



www.masteringbiology.com

Interactive website: free and open resources

Access code in text book

Exams/Quizzes

You are not allowed to leave during quiz or exam.

No makeup exams or quizzes, instead one score will be dropped.
Cannot start if you show up after the first completed quiz has been returned.

Each lecture exam is worth 100 points, consists of multiple-choice and T/F.

You may not use books, notes, or electronic devices (e.g., cell phones).

You must complete lecture exams within one hour and 20 minutes.


The final exam is worth 120 points. It is comprehensive.

Any questions, problems, or challenges to exam questions must be presented to me within one week of the day on which the exam is returned to you. After this grace period has ended, all exam grades are final.

Exams/Quizzes

Absolutely no extra credit, or "curving" of grades.

4 Exams @ 100 pts each (5 th , lowest grade is dropped)	400 pts
4 Quizzes @ 20 pts each (5 th , lowest grade is dropped)	80 pts
Laboratory	200 pts
Final Exam	120 pts
Total Points	800 pts




Important Dates:

September 6 – last day to drop the course **without a W**
 September 6– last day to withdraw and receive a 50% refund – no refunds after this day
 October 11 – Final date to apply for fall 2013 graduation
 November 1 – Last day to switch from Credit to Audit
 November 1 – Last day to drop with a grade of W
 December 10/12– Last in final class exam


Any questions??

Finally, let's talk some science!





Every creature is better alive than dead, men and moose and pine trees, and he who understands it aright will rather preserve its life than destroy it.

-Henry David Thoreau



Biology- the study of life

1st sign of life 4 billion years ago- single celled organism

Properties of life

All organisms:

- 1) are composed of the same common building blocks and structures
- 2) replicate their genetic material in the same way
- 3) evolve through changes in their genetic material

4) Reproduction is Universal



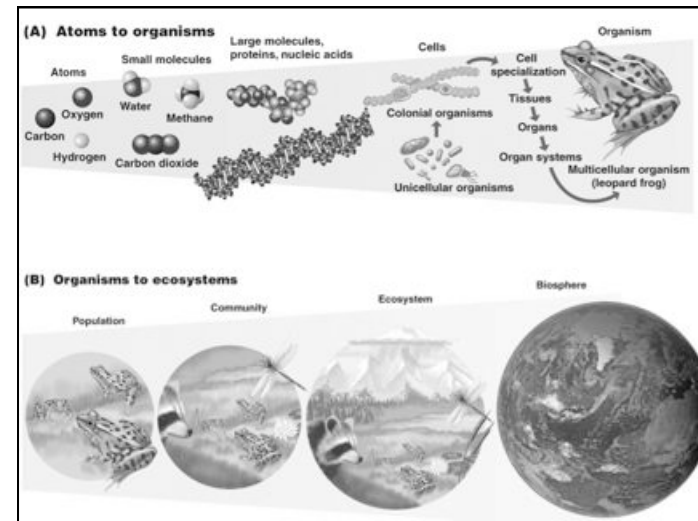
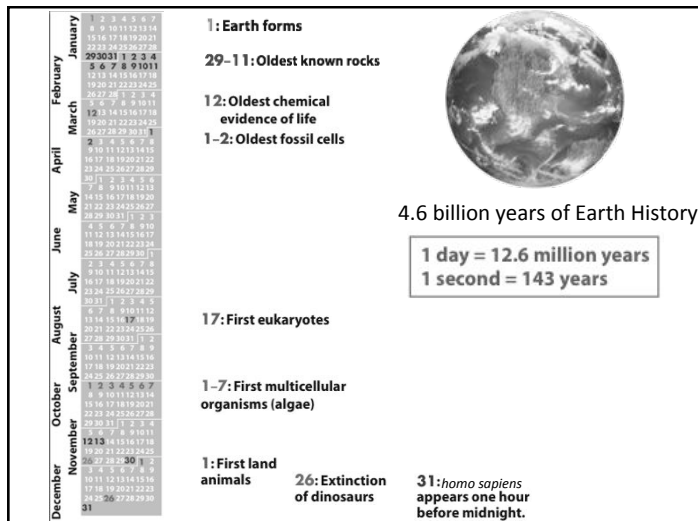
- 5) convert environmental molecules into biological molecules
6) use energy from the environment to do work



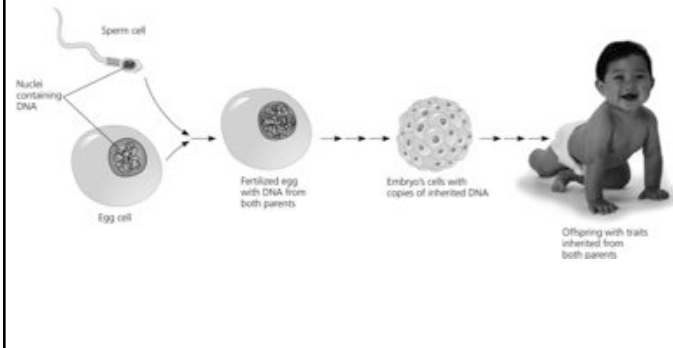
7) Growth and Development



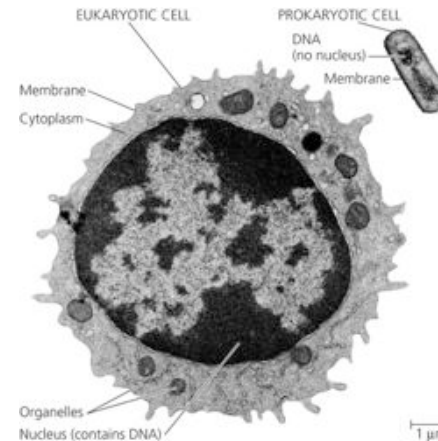
8) Detect and Respond



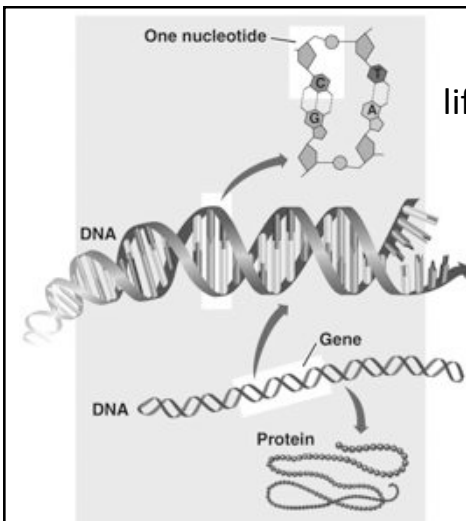
ALL Living Organisms are Composed of Cells- the basic unit of life



Eukaryotic vs. Prokaryotic Cells



DNA =
life's blueprint



Biology- the study of life

Critical steps for appearance of life:

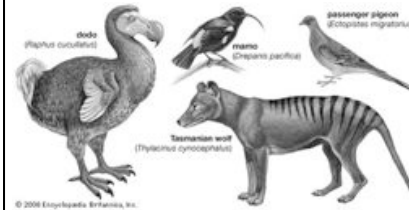
- 1st step: nucleic acids
Serve as templates for synthesis of complex molecules (proteins)
- 2nd
Enclosure of biological molecules by membranes
- 3rd
Obtaining fuel for energy from the environment, and resulting ozone layer
- 4th
Development of internal structures with specialized functions, membrane bound
- 5th
Multicellularity

Living Organisms are in a Constant State of Change



Most species are only known to humans by their remains

Living Organisms are in a Constant State of Change

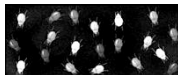


> 99.5% of all species that have existed on Earth have become extinct.

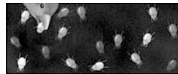


40% of all species currently on Earth are at risk of becoming extinct.

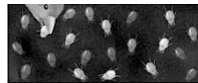
Natural Selection



Population with varied inherited traits

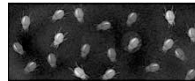


Certain traits are **selected against** (perhaps by predation)



The survivors reproduce

Increasing frequency of traits that enhance survival and reproductive success



Artificial Selection



Mutations

A permanent change in the DNA sequence of a gene

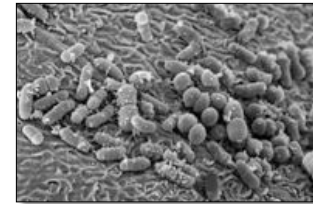


New Organisms

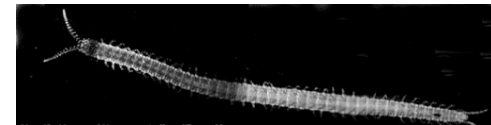
Some populations promote new species evolution



Goldenmantled Kangaroo



New bacteria evolve every day

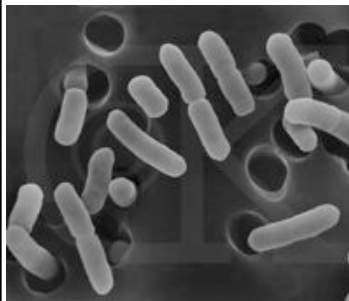


New species of centipede found in Central Park, New York City

The 3 Domains of Life

Prokaryotes

Domain: Bacteria



E. coli

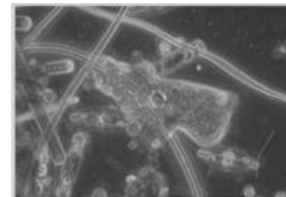
Domain: Archae



Halobacteria

Domain: Eukarya

Protists



Plantae



Fungi

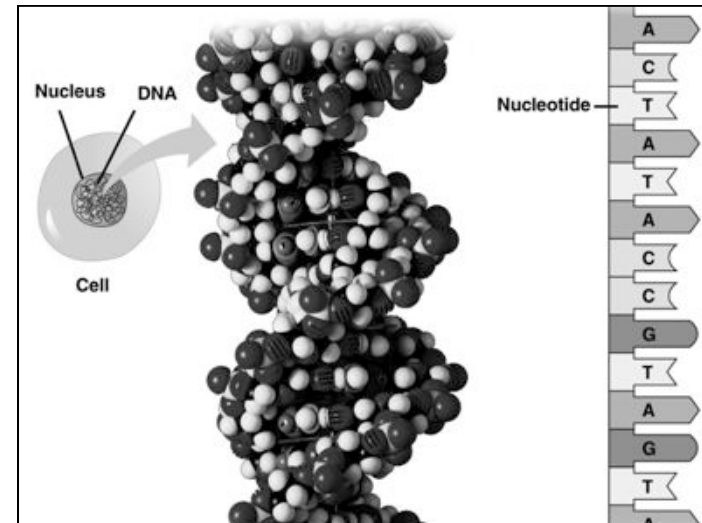


Animalia



How are theories such as evolution tested?

Scientific method



Atoms and Elements

Element - Matter that cannot be broken down to other substances



Elements??

Periodic Table of Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																													
1 H Hydrogen 1.008	Atomic Data Symbol Atomic Weight Atomic Number																He Helium 4.003																													
2 Li Lithium 6.941	3 Be Beryllium 9.012	C Solid Carbon 12.011	Mg Liquid Magnesium 24.305	H Gas Hydrogen 1.008	Metals							Nonmetals				Ne Neon 20.180																														
4 B Boron 10.811	5 C Carbon 12.011				6 N Nitrogen 14.007	7 O Oxygen 15.999	8 F Fluorine 18.998	9 Ne Neon 20.180	10 Na Sodium 22.990	11 Mg Magnesium 24.305	12 Al Aluminum 26.982	13 Si Silicon 28.086	14 P Phosphorus 30.974	15 S Sulfur 32.065	16 Cl Chlorine 35.453		17 Ar Argon 39.948																													
18 K Potassium 39.098	19 Ca Calcium 40.078	20 Sc Scandium 44.956	21 Ti Titanium 47.88	22 V Vanadium 50.942	23 Cr Chromium 51.996	24 Mn Manganese 54.938	25 Fe Iron 55.845	26 Co Cobalt 58.933	27 Ni Nickel 58.693	28 Cu Copper 63.546	29 Zn Zinc 65.38	30 Ga Gallium 69.723	31 Ge Germanium 72.64	32 As Arsenic 74.922	33 Se Selenium 78.96	34 Br Bromine 79.904	35 Kr Krypton 83.80																													
36 Rb Rubidium 85.468	37 Sr Strontium 87.62	38 Y Yttrium 88.906	39 Zr Zirconium 91.224	40 Nb Niobium 92.906	41 Mo Molybdenum 95.94	42 Tc Technetium [98]	43 Ru Ruthenium 101.07	44 Rh Rhodium 102.91	45 Pd Palladium 106.90	46 Ag Silver 107.87	47 Cd Cadmium 112.41	48 In Indium 114.82	49 Sn Tin 118.71	50 Sb Antimony 121.76	51 Te Tellurium 127.6	52 I Iodine 126.91	53 Xe Xenon 131.29																													
54 Cs Cesium 132.91	55 Ba Barium 137.33	56 La Lanthanum 138.91	57-71 Lanthanoids	72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.84	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium [209]	85 At Astatine [210]	86 Rn Radon [222]																												
88 Fr Francium [223]	89 Ra Radium [226]	90-103 Actinoids	104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [277]	109 Mt Meitnerium [268]	110 Ds Darmstadtium [271]	111 Rg Roentgenium [272]	112 Uub Ununbium [285]	113 Uut Ununtrium [284]	114 Uuq Ununquadium [289]	115 Uup Ununpentium [288]	116 Uuh Ununhexium [292]	117 Uus Ununseptium [294]	118 Uuo Ununoctium [294]																													
For elements with no stable isotopes, the mass number of the isotope with the longest half-life is in parentheses.																																														
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17 La Lanthanum 138.91	58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium [145]	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.05	71 Lu Lutetium 174.97	72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.84	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium [209]	85 At Astatine [210]	86 Rn Radon [222]	87 Fr Francium [223]	88 Ra Radium [226]	89 Ac Actinium [227]	90 Th Thorium 232.04	91 Pa Protactinium 231.04	92 U Uranium 238.03	93 Np Neptunium [237]	94 Pu Plutonium [244]	95 Am Americium [243]	96 Cm Curium [247]	97 Bk Berkelium [247]	98 Cf Californium [251]	99 Es Einsteinium [252]	100 Fm Fermium [257]	101 Md Mendelevium [258]	102 No Nobelium [259]	103 Lr Lawrencium [262]