Biological Sciences
101 Portfolio

NAME

STUDENT ID

CLICKER NUMBER

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Portfolio for XXXXXXXXX

SYLLABUS

Biological Sciences 101 I-07-08 1330MWF Henz Aud
Instructor: John Janovy, Jr., 424 Manter Hall; jjanovy1@unl.edu;
http://bsweb.unl.edu/labs/janovy
Text: Johnson and Losos, *Essentials of The Living World*, 2nd Ed. (McGraw-Hill)

Welcome to the University of Nebraska. I hope your time here is well spent and that the university experience turns out to be a positive one. BioSci 101 is intended for first year students who are not majoring in Biological Sciences. Consequently, this course enrolls people from a wide variety of backgrounds and with an equal diversity of goals and interests. In addition, biology is an exceedingly broad subject; therefore, although lecture will be primarily from the text, you should expect to occasionally hear, or participate in, discussion of current scientific issues that affect your daily life.

What to expect in this class:

(1) I usually will have three lectures a week, mostly explaining material in the book and expanding on that material when appropriate. Facts, vocabulary, and diagrams will all come from the book, but the meaning, significance, and interpretations will come mainly from material presented in class.

(2) You will have weekly writing exercises done in class and you will be asked to pick up your papers and do some additional work on them. All papers will be in a plastic box outside my office door.

(3) You may be asked to write short papers in addition to, and sometimes instead of, coming to class one or two times during the semester. These paper assignments are likely to seem strange and challenging.

(4) We will use the electronic classroom response system, also known as "clicker technology," every day in class beginning after Labor Day. Plan to bring your "clicker" (officially known as a "response pad") to class every day and do not lose it. This technology makes it easy for me to include attendance and participation as part of the grading criteria.

(5) Some student(s) will earn extra points by asking excellent questions, or demonstrating other kinds of intellectual leadership. I may also turn the microphone over to students periodically.

(6) The material will be integrated from the beginning, in the sense that both lecture and readings are likely to include information from sub-cellular to ecosystem levels and from several places in your book. I suggest considering the index to be the rough equivalent of Google, in the sense that you can search for terms in the index and come up with information about those terms. I will try to tie these subjects together, and you are expected to try to do the same.

(7) You will be treated as if you have come to a major university (which you have) and will be expected to behave accordingly in this auditorium. If you are being disruptive, talking excessively, reading the newspaper, talking on your cell phone, lost in a dream with your iPod plugged into your ears, etc., you will probably be asked to leave, maybe even asked to drop the class.

(8) You will have to take notes, lots of notes, paying particular attention to interpretations of material from the text and to our attempts to integrate the various aspects of biology into a single big picture.

(9) I will try to learn as many of your names as possible; I greatly appreciate your help and cooperation in this effort.

(10) Expect a few unusual class periods when we do something different yet still quite appropriate for a university biology course.

Learning Outcomes for this class:

As a result of taking this class, you should be able to clearly explain the following to your friends and relatives who have not taken biology:

(1) The fundamental nature of science and of biology.

(2) The biological roles and functions of the major ingredients indicated on labels of processed food.

(3) The design of a typical experiment and analysis of the results.

(4) The structure of a cell and the functions of all the cell organelles typically illustrated in an introductory biology text.

(5) Mendelian inheritance of dominant and recessive traits and the calculations used to predict probabilities of genotype.

(6) Why evolution is the central unifying theme in biology.

(7) The evolutionary principles as outlined in an introductory college biology text.

(8) The flow of energy, chemical elements, and molecules through an ecosystem.

(9) The diversity of living organisms on Earth.

(10) The role(s) that humans play, and have played, in modification of the Earth's biota and life support systems.

COURSE ELECTRONICS, OR WELCOME TO THE INFORMATION AGE:

This class uses two forms of information technology. These technological features include a classroom response system and Blackboard (a Course Management Software system). Please get up to speed on these systems as quickly as you can; they're not particularly difficult, but you will need access to the Internet in order to use them.

Classroom Response System (CRS):

In addition to a textbook, you will need a classroom response pad, or "clicker" for this section. The pads are sold separately in the bookstores. *Each pad has a serial number, and you must get online and register it in order to participate in this class*. Instructions for registering online are provided on Blackboard.

Course Management Software (CMS):

UNL has web-based CMS called Blackboard available for use by students and faculty members. I will use that software to post grades, announcements, and possibly outside readings (or links to them), as well as to provide opportunities for you to earn extra credit. You get into this software through the web site http://my.unl.edu. If you are registered for this class you can get into Blackboard for this section.

Attendance:

Attendance is required and accounts for about 15% of your final grade. The quickest way

to get into grade trouble in a large university class is to quit coming to school. You are responsible for all of the material presented in lecture and assigned from the text. Tape recorders are permitted, although I will try to put all lectures up on Blackboard as *.wma files. Beginning with the second week, I will take attendance daily through use of the CRS or written exercises.

Questions:

Questions are expected. Although I have a lecture schedule, it is not so rigid that we can't spend an entire period on class discussion or in answering questions. Someone please raise his or her hand and tell me to slow down, spell words, or repeat if I am going too rapidly.

Grading:

Your grades are calculated on the following basis:

(1) Hour exams – three @ 100 points each	= 300 points
(2) Final exam – one @ 160 points	= 160 points
(3) Written assignments 14 @ 10 points	= 140 points
(4) Attendance	= 100 points
TOTAL	= 700 points
PORTFOLIO BONUS POINTS	= 50 points

Hour exams: The tests may include multiple choice and matching questions, diagrams to label or interpret, and short essays. You should also expect a "critical and higher order thinking" section on each exam, consisting of 5 questions that explore a subject in depth. **There is a test question bank on Blackboard**.

Exam questions: I will take as many of the exam questions as I can from the question banks posted on the Blackboard web site for this course. I am likely to ask you to write some of your own exam questions and provide not only the answers but also the rationale for the answers (on Blackboard).

Pop quizzes: If given, pop quizzes will range from 4-10 points, and those points will be subtracted from the ones available on regular tests.

Writing exercises: Every Friday during the semester I will give small, extemporaneous, writing assignments. You will get 1-3 points (awarded subjectively on the basis of

grammar, information content, etc.) for actually doing these assignments in class, and another 4-7 points (awarded subjectively on the basis of grammar, spelling, originality and insight) if you pick them up on time, do the follow-up writing, and return them on time. Follow-up writing will consist of correcting your own hand-written paper in red ink, typing the paper exactly as you wrote it in class and also correcting the typed version in red ink, and then evaluating your own performance with a single page of double-spaced typing. These writing exercises are due the day the next one is given.

Portfolio Bonus Points: If, some time during the last week of the semester, you show me your complete set of work for this class, assembled according to instructions on Blackboard, and you have received at least 100 of the 140 points available through writing assignments during the semester, I will add 50 points to your total for the semester. Detailed instructions for preparing your course portfolio will be provided on Blackboard.

Grading scale: The class average is middle C. I reserve the right to scale grades up if the class average falls below 75%. If the class average is 75% or higher, then an approximate standard scale applies (90% = A, 80% = B, etc.). If you end up with 630 points I will give you an "A;" with 560 points you are guaranteed at least a "B;" etc.

Makeup exams: I give no makeup exams. If you miss a test because of illness or personal emergency, I will not count that test if you have either a physician's note indicating you were ill, or have some other documentation of a real emergency. If you miss class because of athletic competition, I need to have the letter from your coach and I need to be reminded of that letter frequently and as the semester nears its end. If possible, I will arrange for you to take an exam with you on any university-sponsored trip and have it administered by a university official.

Extra credit: I will provide a number of opportunities for extra credit, which will appear as points simply added to your total. These opportunities will include writing some of your own test questions, contributing to exam preparation via Blackboard, exhibiting intellectual leadership in class, sustaining class discussion (see below), etc. There will be bonus points for assembling a portfolio of all your work in this class (contents and instructions will be on Blackboard). In December, when I do the final grade calculations, if I am able to recognize you on the street, outside of class, by name and face, then I will add 10 extra credit points to your total.

Please decide this morning that you are going to come to class every day, take notes seriously, ask questions, participate in class discussions, take all the exams, take advantage of extra credit opportunities, make sure I can recognize you outside of class,

and get help early if you need it.

Class discussion:

If a group of three or more students initiates a serious class discussion of current events, conducted within the context of material we are covering, and if ten or more additional students actually participate in this discussion, I will add 5 bonus points to the grade of everyone who is in class that day. In order to get these points it will be necessary for you all to be quiet and attentive and to treat your fellow students with respect (but I don't care how lively the discussion gets).

Lab:

I have no responsibility for, or control over, your lab grade. BioSci 101L is a separate course from BioSci 101. However, I will try to cover certain topics, e.g. cell biology and genetics, before they are covered in lab. Dr. Jon Sandridge is the General Biology Laboratory Coordinator. His office and the Bios 101 lab office are located in room 101A Manter Hall; his telephone number is (402) 472-0620; and, his e-mail is jsandridge2@unlnotes.unl.edu.

Office hours:

My office hours are MW afternoons after class and Th afternoon 1:30-3:30. You can call me at 472-2754 (office), or leave a message at 472-2720 (BioSci office) or 489-4369 (home). If you leave a message on my home or office phone, please speak slowly and clearly, and leave your name and phone number. I also have a mailbox in 348 Manter Hall (BioSci office, campus mail zip is 0118). My e-mail is jjanovy1@unl.edu. I am available by appointment about any day, including late in the afternoons (except on Friday). If you see me out on campus and I don't seem to be doing anything important, feel free to introduce yourself and ask any questions you may have about biology.

Study hints:

(1) Make a vocabulary list. Someone ask me about how to make and use such a list.
(2) Find a study partner, or several, and use the vocabulary in your daily conversation.
(3) Seek individual help early if you feel completely lost.
(4) DON'T feel embarrassed if you are not doing as well as you think you should be; seek help.
(5) Use all the resources available, including those that may be on Blackboard.
(6) Attend the Supplemental Instruction sessions.

About your instructor:

John Janovy, Jr.
Paula and D. B. Varner Distinguished Professor of Biological Sciences
BS in Math (1959), MS in Zoology (1962), and PhD in Zoology (1965); University of Oklahoma; post-doctoral research, Rutgers (1965-66).

Research interests: parasitology, especially ecology of parasitism and evolution of parasite life cycles, with focus on the protistan parasites of insects and the helminth parasites of small fish. There are usually 2-3 graduate students and 1-3 undergraduates doing research in my lab.

Other courses taught: Parasitology (BIOS 385, spring semesters), Invertebrate Zoology (BioSci 381, fall semesters), Field Parasitology (BioSci 487/887, Cedar Point Biological Station, Lake McConaughy, NE).

Web site: http://bsweb.unl.edu/labs/janovy

General advice on how to maximize the value of the education you receive at the University of Nebraska (these suggestions will cost you absolutely nothing except a little time):

(1) Make sure every instructor you have knows your name, and make sure that instructor knows you and your work well enough so that he/she can write a letter of recommendation for you if necessary.

(2) Simply decide today that you are not afraid of, or intimidated by, faculty members, no matter how obnoxious or wacko they seem, and regardless of whether their "values" are consistent with yours.

(3) Pay attention to world events, especially those with a cultural component. Try to understand why these events take place, even though your courses may not deal with anything other than specific subject matter having nothing to do with global politics or economics.

(4) Visit the museums on campus about once a week (free with student ID). Talk to your friends about what you see in those buildings. Visit the Sheldon Gallery regularly and be able to talk intelligently about the works there, as well as the sculptures on campus.

(5) Pay attention to the campus landscaping; read the labels on the trees and plants. Talk about campus landscaping and vegetation with your friends.

(6) Read some high quality magazine fairly regularly. I suggest *The New Yorker*, *Harpers*, or *Atlantic Monthly*. Ask your instructors for a reading list of non-fiction books and read some of the items on such lists.

(7) Talk to your parents or guardians about the ideas you are encountering at UNL.

(8) Do *something* original and creative (poetry, music, sketches, etc.) on a fairly regular basis.

(9) Go to free lectures and recitals when you have the opportunity. Once you get there, stay through the whole thing and be a quiet and attentive audience member.

(10) Talk to your fellow students. Find out who are the most challenging faculty members in the arts, humanities and social sciences, and enroll in those teachers' courses.

GENERAL BIOLOGY LABORATORY ANNOUNCEMENT (Bios 101L)

The laboratory is an integral part of the General Biology course. It is designed to provide you with a series of experiments and observations which illustrated many of the basic biological principles discussed in lecture. Efforts have been made to coordinate the sequence in which lecture and lab materials are presented. In general, the basic background information necessary to carry out each week's lab exercise will be covered in lecture prior to the lab exercise. ***The General Biology Laboratory is a 1 credit hour course (Bios 101L) which must be taken concurrently with lecture (Bios 101).*** Your lab grade will NOT be averaged into your lecture grade.

Please note the following policies:

1. If you drop or withdraw from Bios 101 lecture you must also drop or withdraw from Bios 101L lab. Conversely, if you drop or withdraw from the Bios 101L lab you must also drop or withdraw from Bios 101 lecture.

2. Attendance will be taken at each lab meeting. If you miss more than 2 lab sections, you will automatically receive a grade of F for the laboratory (Bios 101L).

The General Biology Laboratory Coordinator is Jon Sandridge. His office and the Bios 101 lab office are located in room 101A Manter Hall; his telephone number is (402) 472-0620; and, his e-mail is jsandridge2@unlnotes.unl.edu. All questions concerning the laboratory should

be addressed to Dr. Sandridge.

LECTURE SCHEDULE. In the following schedule, biology is presented in a sequence that is intended to build upon itself, the earlier lectures providing background information, ideas, and concepts necessary to understand the topics presented later in the semester. Biology is a highly integrated field of study; for this reason I may select readings from several places in the book so that you will have both facts and context relevant to the topic. In the Reading column, the entries are the textbook sections. The sequence of topics also is somewhat dictated by the laboratory.

Week of Topics; refs in text

Week	Topic	Reading	Question, Topic, or Issue
1	What is science?	1.5 - 1.7	Science literary in the general public.
1	What is biology?	1.1 – 1.4	How scientists approach the study of living organisms.
1	What is evolution?	1.9, 2.3, 2.5	Why is "it's only a theory" the wrong phrase to use when Trying to deny that the process of evolution shapes life on Earth?
2	Cell chemistry	4.1 – 4.5	What's in junk food? Why can I get vaccinated against some viruses
2	HIV	17.2 - 17.4	Why are flu viruses different from HIV and what is meant by "mutat
2	Bacteria	17.2 – 17.4	Astrobiology, disease diagnosis, and sex on a very small scale.
3	Eukaryotic Cells	Chapter 5	What is meant by the term "cell"?
3	Eukaryotic Cells	Chapter 5	What is meant by the term "cell"? (cont'd)
3	Eukaryotic Cells	Chapter 5	Why are cells of potential use in medicine? In agriculture?
4	Cell Activities	Ch. 5, 6, & 7 (parts of	How you and every other living organism process the environment.
4	Cell Activities	those	Food, feces, parasites, decay, recycling, worms, etc.
4	Cell Activities	Chapters)	A biologist reading labels (more junk food)
5	Genetics	Ch. 9 - 14	What did your parents tell you about sex?
5	Genetics	We'll select	What should an educated citizen know about sex?
5	Genetics	parts of these	Diversity, designer kids, and human evolution - The basics
6	Genetics	Ch. 9 - 14	Why is phenotype so important?
6	Genetics	We'll select	Why is phenotype so important? (cont'd)
6	Genetics	parts of these	What is genetic information and how might it be used for profit?
7	Genetics	Ch. 9 – 14	Some information on human genetics.
7	Genetics	We'll select	Molecular genetics and evolutionary biology.

7	Genetics	parts of these	What is the so-called "nature-nurture controversy"?
8	Evolution	Ch. 2	What is evolution?
8	Evolution	Ch. 2 & 15	Why is evolution the central unifying theme of biological science?
8	Evolution	Ch. 2 & 15 cont'd	Why do biologists consider evolution to be a fact?
9	Evolution	15.4 -15.5	Population genetics and mutation.
9	Evolution	21.7 – 21.10	Co-evolution and co-speciation.
9	Evolution	16.1 – 16.5	The cladistic methodology.
10	Evolution	21.2 - 21.4, 23.9	Are humans evolving?
10	Evolution	16.7, 17.4	Why is the evolution of disease-causing organisms of importance to people?
10	Evolution	Blackboard	Who is actually hurt by the teaching of evolution?
11	Ecology	20.9 – 20.10	What is meant by the term "environment"?
11	Ecology	20.1 – 20.5	The flow of materials.
11	Ecology	23.1 - 23.5	Are humans destroying the Earth?
12	Ecology	Blackboard	What is the relationship between the Earth's history and current polit events?
12	Ecology	Blackboard	To what extent do natural phenomena override government actions?
12	Ecology	Blackboard	What power do individuals have to direct their own future and that o their children?
13	Organismic Biology	Ch. 17-19	Who shares this planet with us?
13	Organismic Biology	Ch. 17-19	Who shares this planet with us?
13	Organismic Biology	Ch. 17-19	Who shares this planet with us?
14	Organismic Biology	Ch. 17 – 19	Who shares this planet with us?
14	Organismic Biology	Ch. 17 – 19	Who shares this planet with us?
14	Organismic Biology	Ch. 17 – 19	Who shares this planet with us?

EXAM DATES:

Wednesday, September 12, 2007. Bring two sharpened No. 2 pencils.

Wednesday, October 10, 2007. Bring two sharpened No. 2 pencils.

Wednesday, November 14, 2007. Bring two sharpened No. 2 pencils.

FINAL EXAM: Monday, December 17, 1:00 – 3:00 PM. Bring two sharpened No. 2 pencils.

Information sheet (please print legibly, thanks!):

Name_____ Clicker number (if known)_____

Home town_____ High school attended_____

What year are you? (freshman, sophomore, etc.)_____ Major_____

e-mail
address_____
(Please print this address very carefully, exactly as you would send a message to yourself.)

Other UNL activities you are involved
in_____

_____

Do you read any magazines? If so, what are
they?_____

_____

What are the last two books you read that were not required as part of a
course?_____

_____

What museum did you last visit, and when was that
visit?_____

_____

Have you taken at least six semesters of a foreign language, or do you speak and read a language other than English, and if so, what is
it?_____

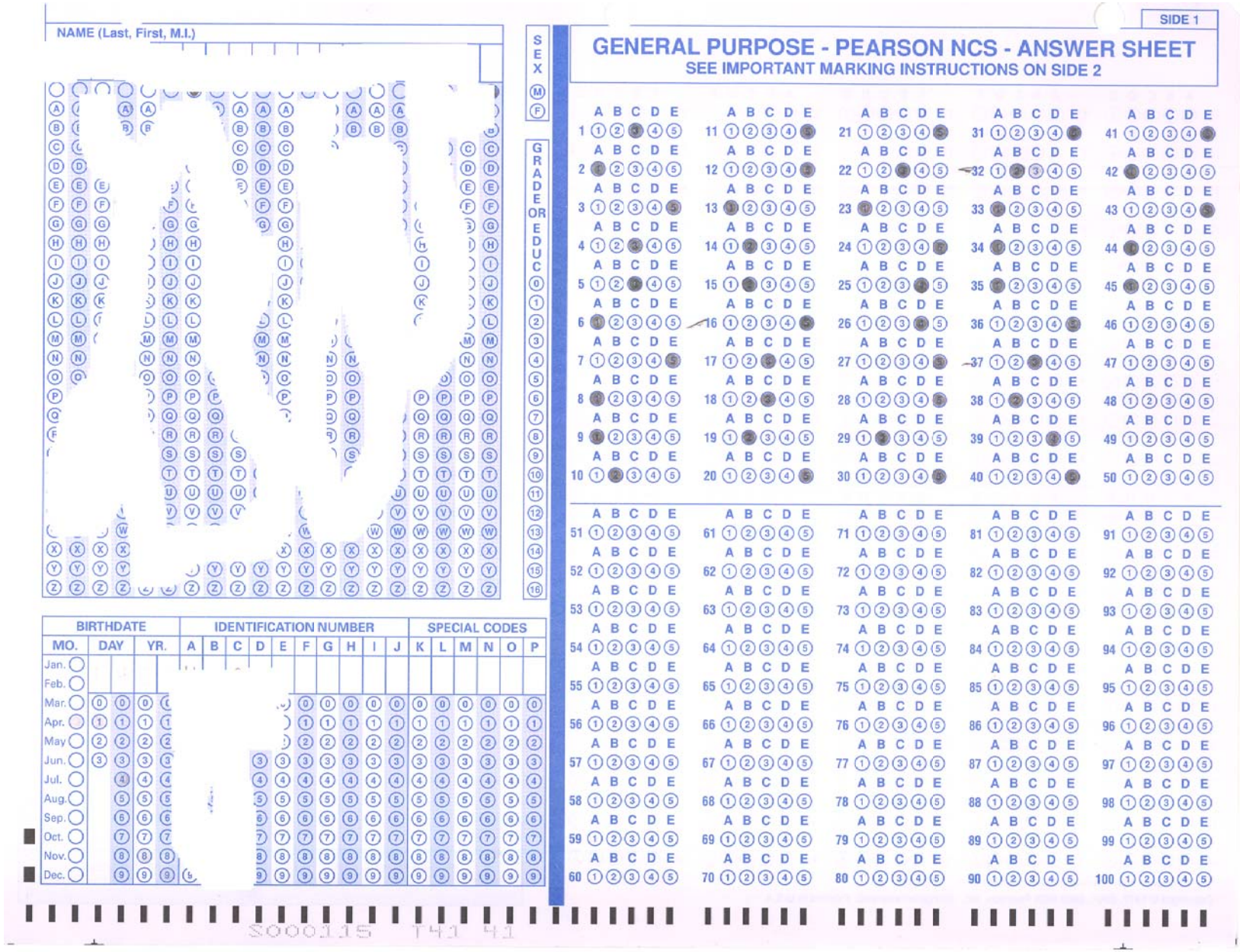
Foreign countries you have
visited_____

Reason you are taking this course_____

_____

Might you be at all interested, ever, in undergraduate research?_____

Do you have a scholarship?_____ If so, what kind?_____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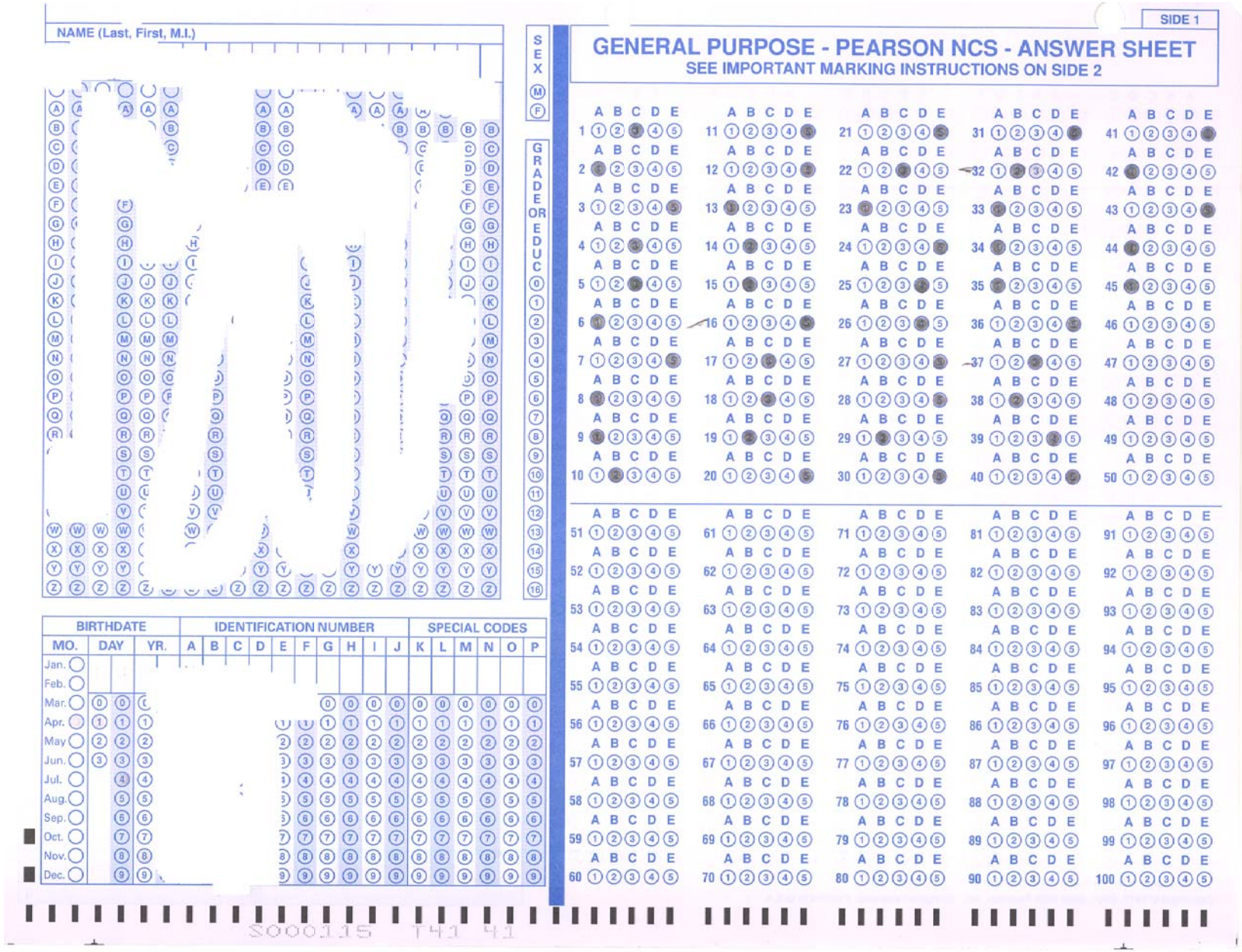
Exam #1 Self-Assessment

Overall, I am happy with my exam performances, especially on exam #1. Because this was the first major test (and grade) in this class, I was not exactly sure how the format of the test would be and was slightly nervous about it. This first exam was about basic biological concepts (examples: hypotheses and experimentation), cell structures, and macromolecules (carbohydrates, protein, etc.). To prepare for the test, I read the relevant chapters in my book at the beginning of the unit to familiarize myself with the basic concepts involved. As the test got closer, I reread sections that we discussed extensively in class and also looked at the diagrams and charts. I attended all of the lectures and took notes during each one. Before the test, I also reviewed these. I would say that the one of the most helpful studying tools that I used were the test bank questions. I went through all the relevant questions for exam #1 and made sure that I could answer all the questions. I found that the actual exam contained many of the same types of questions, or at least the same vocabulary. All of these techniques helped me to do well on the test.

After all this studying, I did pretty well on the test. I ended up with a 93.1%, which was my highest test grade for the semester. I got #16, 32, and 37 wrong, which dealt with nucleic acids, glycoproteins, and superfecundity respectively. I really should not have gotten these wrong because when I corrected by test, I realized right away why the answer I put was wrong. This tended to be a recurring theme in my tests this semester. I think that a lot of times the problem is due to the fact that I tend to overanalyze the questions, thus confusing myself as to what the correct answers should be. However, I suppose that this is a better problem to have than not knowing the material entirely. Nonetheless, I need to continue to work on solving this

problem by slowing down and answering each question carefully. Overall, I was happy with my performance on this first exam.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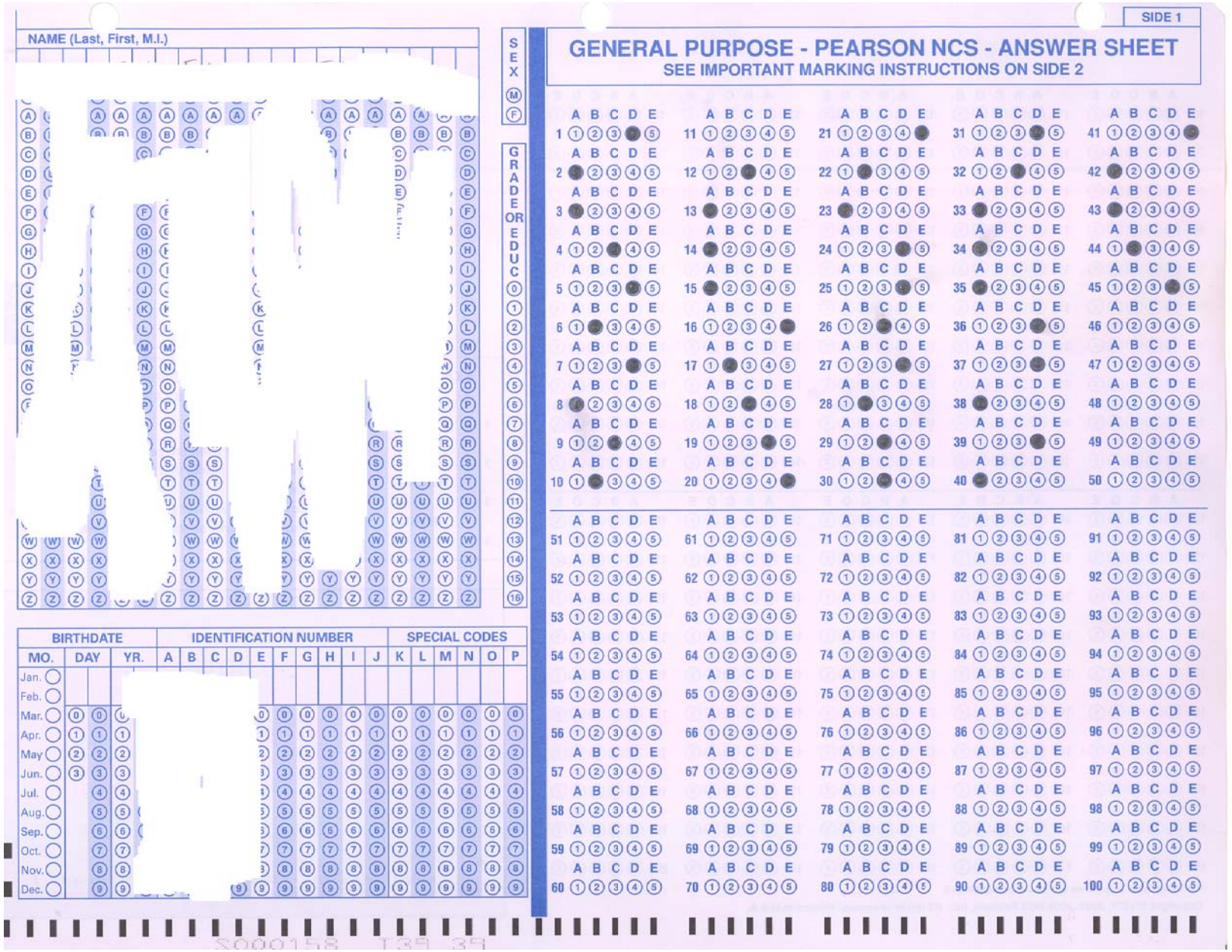
Exam #2 Self-Assessment

I decided to keep the same method of studying for the second exam because it worked out well for me the first time. This time around, I knew the format of the test and was more confident going into it. Nonetheless, I still made sure that I understood the material well and didn't take it for granted that I would do well on the second test. This test covered cellular functions, such as cell respiration and photosynthesis and carbon transfers between different organisms. Because I used the same method to study, I started out by reading the chapters in the book that dealt with this material. Closer to the test, I reread the most important sections to make sure that I understood this material fairly well. Again, I attended all lectures and took notes, which I later referred to when studying. The test bank questions were again helpful as I worked through each of them to familiarize myself with likely possibilities on exam #2. It seemed that there were a lot more technical terms and diagrams in this unit than in the first one (for example, figuring out what happens at each stage of photosynthesis or deciding how the metabolic pathways work). Thus, I tried to concentrate my studying on these because I was thought I might get confused by them on the test.

My grade for exam #2 was not as good as the first exam's. I received an 86.7%, which is not that bad, but I was disappointed that I did not do better. Obviously, I didn't know the material as well as I thought I did. I got #5, 8, 19, 27, 28, and 32 wrong. These dealt with the movement of glucose, anabolic pathways, the Krebs cycle, and photosynthesis, respectively. Like the last test, I made some dumb mistakes in which I answered questions incorrectly that I should have been able to get right. I think that my problem was that I didn't know the answers to a couple questions and then got flustered and forgot the answers to- some of the others as well. This is especially true with the photosynthesis section. For some reason, I got really confused on

this section and spent more time here than I should have. I felt like I was running out of time and thus could not think very clearly. Although, I didn't do horribly on this test, I definitely felt that I could have done better if I had studied certain aspects of the unit a little more.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Exam #3 Self-Assessment

For the third and final exam, I used mostly the same study methods that I had used for the first two tests. Because I wasn't happy with my second test score, I studied extra hard so that I could do better this time. This test covered mostly genetic material. Out of the three tests we had this semester, this one was the one that had the most new material for me. Although I had done basic Punnett squares in other general biology classes in high school, the other material was mostly new for me. Although it didn't seem that difficult, I made sure to study it well so that I wouldn't have problems on the test. I read the chapters on genetics, meiosis, and mitosis and consulted the various diagrams and examples that illustrated the major concepts of the unit. Once again, I attended all the lectures, made sure to pay attention, and took good notes. The test bank questions were again helpful as I worked through each of them to familiarize myself with likely possibilities on exam #3. I found it helpful to spend some time working on genetic crosses and drawing the steps of the cell cycle in order to help memorize concepts, instead of just reading them from the book.

I did okay on the third test. I received an 88.6%, which was better than the results for the second test, but not as good as the first test. I answered questions 14, 16, 23, and 42 incorrectly, which involved allele segregation, linked loci, and crossing over respectively. I think that I concentrated too much of my studying on solving genetic problems rather than looking at the vocabulary. All in all, I did okay on this test. I was disappointed that I didn't do better because I was hoping to get an A, but I think that I still did pretty well. After looking over the right answers, I understand the reasons why they are correct. This is important because, over the long run, it is more important to learn why the answer was wrong and how to improve than to just get a good grade on a single test that does not necessarily prove the student knows the material well.

Looking back over the entire semester, I think that I had good study habits and that my test grades were decent in relation to the amount of work that I put into the class.

3

BIOS 101 1:30MWF
Extemporaneous writing for 083107

Name__
Clicker #_ _____

The plant that I picked was the bald cypress (Taxodium distichum). Although this plant can grow in many geographic areas, it is best known as being a part of the swamp ecosystem in the southeastern United States. It plays an important role in this area, however it will interact with the community of plants surrounding it wherever it is located. There are a number of ways you could test this. You could set up a null hypothesis, such as "The bald cypress plays no role in the surrounding plant community" and then closely observe what happens in this environment. The best way to test the hypothesis would be to have similar habitats (ie same types of soil, same weather conditions, same plant species excluding the cypress, etc.) One habitat would have plants typical to the area, but no bald cypress tree, while the other habitat would have a cypress tree along with the typical plants. Thus you would have a control that could be used to help show whether bald cypresses have a role in the surrounding environment or not. Because bald cypresses are slow-growing and large, this would probably not be the type of experiment one could do in a lab. It calls more for direct observation. I would then need to write up my results.

Writing for 8/31/07

Clicker

The plant that I picked was the bald cypress. Although this plant can grow in many geographic areas, it is best known as being a part of the swamp ecosystem in the southeastern United States. It plays an important role in this area, however it will interact with the community of plants surrounding it wherever it is located. There are a number of ways you could test this. You could set up a null hypothesis, such as “The bald cypress plays no role in the surrounding plant community” and then closely observe what happens in this environment. The best way to test the hypothesis would be to have similar habitats (i.e. same types of soil, same weather conditions, same plant species excluding the cypress, etc.) One habitat would have plants typical to the area, but no bald cypress tree, while the other habitat would have a cypress tree along with the typical plants. Thus you would have a control that could be used to help the show whether bald cypresses have a role in the surrounding environment or not. Because bald cypresses are slow-growing and large, this would probably not be the type of experiment one could do in a lab. It calls more for direct observation. I would then need to write up my results.

Writing for 8/31/07

Overall, I would say that I had a strong performance for this paper. The paper addressed the question being asked, namely to design an experiment that showed how the bald cypress interacts with the plant community around it, but I also tried to include some basic facts that I had learned while researching the bald cypress. I also included some "scientific vocabulary." An example of this would be the use of "null hypothesis." By using an example of this type of hypothesis, I was able to prove that I knew what I was talking about rather than just listing words that I had heard at some earlier point.

While there are some parts of this paper that I think are fairly good, there is also a lot that could be changed. Certainly a major problem with this paper is the fact that I didn't expand on any of my ideas and the overall work is somewhat disjointed. Because I was trying to write as much as possible in ten minutes, the specifics of my ideas were often left out and the transitions between those ideas are not very smooth. If I were to go back and rewrite this page, I would expand upon my ideas and make sure that each one was clearly laid out.

There were also some grammatical errors in this writing. For example, I used the words "I", "my" and "you" a total of six times in this short paper. While this might not be a problem in a casual paper, it really shouldn't be present in a formal, scholarly paper. Likewise, I used abbreviations, such as i.e. and etc., which are rather informal. Like the use of personal pronouns, these would not be acceptable in a formal paper. Also, my work is presented in one long paragraph. If I were to rewrite it, I would make sure the paper was better organized with information clearly presented in specific paragraphs. I would also include more of an introduction and definitely a better conclusion.

3+7=10

BIOS 101 1:30MWF 07 090707 Writing Name_
Clicker

This label is simply a list of all the chemicals, molecules, and ingredients used in a particular product. There are sugars, lipids ~~[illegible]~~ and starches in it. An example of starches would be the potatoes and potato or tapioca starch. Since it's towards the top of the list, the reader can assume that it is one of the main ingredients. Starches are complex polysaccharides, which can be ~~[illegible]~~ used as a form of energy storage. Starches, such as potatoes, are digestible to humans, but those containing cellulose are not — animals who eat cellulose need a special bacteria to help them digest it. Another major ingredient in this product is vegetable oil, part of the lipid family. Lipids are used as long-term energy storage units. Because there is lipids in the form of oil, it is probably unsaturated — meaning that there are some double bonds between carbon atoms instead of each carbon being linked with a single bond along with a hydrogen atom. There are also sugars present in this product. Obviously, table sugar falls into this category, but there are other, perhaps less well-known ones as well. For example, there [redacted] are milk and cheese products in this product, which contain, lactose, a kind of simple sugar. Fructose and glucose are also other types of simple sugars. Finally, there is also some chemical compounds present — which are often used to help preserve the food.

Bios 101: 9/7/07 Writing

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Bios 101: 9/7/07 Writing

Overall, I would say that the quality of this paper is similar to last week's paper. Some of the issues in last week's paper were resolved, while some other minor issues were brought up. I again made sure that I answered the question being asked as thoroughly as I could in ten minutes and I also attempted to use some of the vocabulary words so I could show what I knew about the subject. I also resolved some of the problems from last week, including using the correct point of view for my writing (using an objective third person) and not using abbreviations. I also made sure to include specific examples from the food label in my paper.

Again, I disliked the overall organization of my paper. However, I think this is to be expected because with only ten minutes to work, I put more of my concentration into getting the big ideas across rather than making sure my paper is organized and neatly written. There was a lot more that I could have discussed in this paper, including the specifics of lipids, starches, and sugars. I also could have given more information similar to the discussion of unsaturated fats. Although this was not an implicit part of the question, by including additional information, I can make my paper more informative and interesting to the reader. If I were to rewrite this paper, I would reorganize my ideas and make sure that it was very clear what I was talking about.

There were some minor grammatical issues that I noticed. There were a couple of times where my subjects and verbs did not agree. Likewise, the syntax of my sentences could have been clearer in many cases. Another small change that I could make would be to get rid of the contractions. This would make my paper less conversational. Overall, my paper is fairly good. However, it is not up to my usual standards and there is definitely room for improvement.

3+8=11

BIOS 101 Extemporaneous writing 091407 Name_
Clicker #_

The features of the bald cypress are dependent on both genetic and environmental factors. In general, some aspects of a plant will be based on genetic factors, which no one can control. Other aspects of the plant will be based on the environment the plant is situated in. There are a couple of bald cypress trees that I have found on campus. Overall, their general structure is similar (the genetic part of it) while there are some minor differences (due to the environmental differences). For example, the texture of the bark, the green [redacted] needlelike shapes and color of the leaves, and the approximate height would all be part of the features affected by genetics. The look and general growth patterns of the plant are due to [redacted] the genetic code found in DNA [redacted] and will not be greatly affected by environmental changes (ie the leaves will not turn blue to due an evironmental factor other than an external, artificial one) Microscopic features are also due to genetics, including cell function, photosynthesis, and the like. Environmental factors could include the height of the tree and the overall healthy appearance of the cypresses. If there are larger trees nearby, the cypress will be dwarfed and will not grow as tall because of the lack of sunlight— this is an evironmental factor. Furthermore, if the cypress was located in poor soil conditions (very acidic, dry soil), it wouldn't grow as well - this is also due to

Bios 101: 9/14/07 Writing

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Bios 101: 9/14/07 Writing

The quality of this paper is similar to the last two weeks' papers. I have been paying more attention to the issues that I recognized in the first papers, but there have been some other minor problems that have come up. I thought that this week's question was a little bit harder than the previous questions because I had a hard time narrowing down what I wanted to discuss. However, because the problem was knowing too much information, the overall quality of my paper was not especially affected because I knew what I wanted to talk about. The paper does a good job answering the question being asked and I made sure to include some specific examples of the bald cypress, in order to get the full points.

Organizational issues seem to be a recurring theme with my papers. While the organization is not terrible, there is definitely room for improvement. When I am in a rush, I tend not to pay much attention to things like paragraphs, introductions, and conclusions. While this might not be a major issue in an extemporaneous writing such as this one, these organizational issues become more important in formal papers. One thing that I liked about my paper was the fact that I gave examples of both genetic and environmental differences, while also trying to bring the bald cypresses on campus into my paper. An example of this would be talking about the fact that the leaf color and shape is due to genetics, while the growth of lack thereof could (but not definitively) be caused by environmental factors.

There were some small grammatical issues in the paper. The voice is still rather casual. For example, the use of parenthetical examples is not used in a very professional way. Likewise, there was a syntax error, where I switched "to" and "due" around. Also, I used many of the same words over and over. For example, the words "differences", "genetics", and "environmental"

showed up a lot. Overall, the paper was fairly well-written. However, there are still minor issues that I can continue to work on. By the end of the semester, I should have a pretty good handle on short, time writings and my overall work should be much better.

3+7=10

BIOS 101 Writing for 092107 good Name__
Clicker ID_ ____

What would a chapter in a freshman biology textbook have to say about your individual plant (not the species), to convince first year, non-majors, students that the Big Picture in Biology was a valid representation of nature and science?

The Big Picture in biology is a combination of many things. It says that biology is a major component in our day-to-day lives, irregardless of whether we recognize it or not. Events that happened long ago are still creating a major impact in today's world and are often at the center of various problems in society today. Basically, the "big picture" says that biology is an overwhelming influence in everyday life and thus it's important to understand at least the basics of this science.

To further convince a student that biology is important as a whole, specific examples could be used. The bald cypress on the UNL campus could be one such example. Although it is just one tree, much could be written about its impact on others. We can see how evolution has shaped the current tree into what it is. By looking at what goes on in the tree, you can see the role it plays in its ecosystem. For example, seeing birds nesting in the tree or seeing someone enjoying its shade would show how it plays a larger role in the biological world. Although it is just one tree, it could be used to show the importance of biology to everyday life and might be able to convince students of the importance of learning about biology in order to remain →

Bios 101: 9/21/07 Writing

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Bios 101: 9/21/07 Writing Reflection

This paper had some good parts in it; however, there were some areas that definitely could have used more work. While I didn't have any problem understanding what the "big picture" of biology is, I did have some trouble figuring out how to relate that to my specific campus plant. Overall, I think that my paper could have been a lot stronger if I had actually related the "big picture" to my campus plant.

However, there were some positive things in this paper. This week I tried to work on my organization more. I used two paragraphs and tried to organize the information so that the first paragraph was about the "big picture" of biology and the second paragraph was about my campus plant. I also did a good job of explaining the "big picture" of biology, which is important because the reader needs to know what this term means in order to get any understanding from the rest of the paper. The spelling, grammar, and conventions in this paper are all pretty good.

There is also a lot I don't like about this writing. The biggest thing is that I don't think I addressed the question very accurately or thoroughly. It would have been better if I had given specific examples of my plant and the "big picture." The problem was that I felt like I was under a lot of pressure and couldn't really think clearly enough to come up with some answers. I also lapsed into a combination of second and third person point of views. The second person view should not be present in formal writing. There were also some parts where I was repetitive, especially in the second paragraph. This part of the paper could have been written more concisely. Another minor problem is some of the word choice. For example, "irregardless" is not a formal word that should be used; regardless would have been a better choice. Next week, I am going to try harder on my paper because I know that I can do better than this one.

7+7=10

BIOS 101 092807 Extemporaneous writing Name_
Clicker ID___

In what sense can the compartmentalization of function within a cell be considered a metaphor for specialization within a society?

Although it may seem like the two are unrelated, the compartmentalization of function within a cell can be considered a metaphor for specialization in society. One occurs at the microscopic level, while the other takes place at an obviously macroscopic level, but both are more efficient because of the way they are organized.

The cell is divided into membrane-bound organelles (at least in eukaryotes) that each have a specific function to fill. For example, the mitochondria act as the site for oxidative metabolism (energy conversion), vacuoles act as storage sites, and lysosomes destroy old or diseased cell parts. If there was no division of jobs between the cell parts, the cell would not really be able to function because there would be to much to do and no one cell part could contain all the specialization needed for each function. That said, if something goes wrong in one of the cell's organelles, the whole cell will suffer because they are dependant upon each other's presence.

Like the cell, society is also divided into different groups of people with specialized jobs. Some people become doctors, some work in retail businesses, and some are teachers. Because no one

Bios 101: 9/28/07 Writing

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Like the cell, society is also divided into different groups of people with specialized gobs. Some people become doctors, some work in retain businesses, and some are teachers. Because no one person could have all the time nor the required skills to complete all the jobs required in society. Instead, each person is dependent on others to do certain jobs that they themselves cannot do. Like the cell, if one person doesn't do their job correctly, the whole society will be affected.

In conclusion, the cell and society are similar in that they divide jobs because no one part can do everything at once and they have to work together.

Bios 101: 9/28/07 Writing

The quality of the paper this past week was fairly good. I had no trouble answering the question and my biggest problem was trying to organize my thoughts and write a presentable paper in ten minutes. As before, I have been trying to focus on the problems that I have had in the past, such as organization, so that they can be eliminated in the rest of my papers. I believe that I did a good job of addressing the question and providing examples to back up my ideas and my mistakes were smaller and fewer than before.

Organization has long been a problem for me. However, this time I did pretty well with this topic. I came up with a brief introduction that defined the question. I then had two good body paragraphs; one for cellular organization and one for societal organization. This made it easier to compare and contrast them. Finally, I had a brief conclusion. It was better than not having a conclusion at all; however, it definitely could have used more content in it. Another thing that I think I did well in this paper is giving examples of both cellular and societal parts, such as mitochondria and professions. I think that by including these examples, my argument was strengthened because it gives a tangible idea for the reader to relate to.

The biggest problems that I encountered this week involved grammatical errors. Although they were all minor, it's still necessary to correct them and polish the paper a bit more. For example, I used "to" when I should have used the word "too." I also spelled "dependent" wrong on one occasion. The syntax could also be better in the body paragraphs. At times, it sounds a bit awkward and some of the connecting words (that said, for example, etc.) probably make the tone of the whole paper more casual than it could be. The overall quality of the paper is

pretty good though. The question was answered thoroughly and with examples and the writing errors were minor enough that they do not detract heavily from the ideas in the paper.

BIOS 101 I-07-08 100507 Extemporaneous Writing 3+7=10

Name__
Clicker ID__

Trace the flow of carbon skeletons through your campus plant and its surrounding community over the course of an entire year. Use at least twenty different steps involving at least ten different organisms. Make sure you are specific with respect to your individual campus plant.

Although it may seem implausible, the flow of carbon skeletons moves from organism to organism over the course of the year. Materials move from one organism to the next as they are broken down and subsequently rebuilt. This process can be illustrated by looking at the bald cypress and the flow of carbon in its surrounding community.

The bald cypress, along with the other photosynthetic plants around it, such as grass and other trees, start the cycle by taking in energy from the sun and using it for their own growth. Other animals who live in the area will then eat the various leaves and fruits of these plants (not necessarily from the bald cypress, but from the plants in general). These animals break down the macromolecules found in the plants and use these carbon skeletons to then rebuild molecules for their own growth. An example of this would be a squirrel eating acorns and getting energy from that. The small animals like the squirrel or birds then might be eaten themselves by a larger predator. This predator, such as a cat or dog, would then break down the molecules like protein, lipids, and carbohydrates for use in its own body, during which the molecules will be converted into usable energy and used to fuel the other animal's growth. When the leaves fall off the trees, they decompose into the soil, where they can be used as energy by various organisms, such as some fungi.

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In conclusion, the flow of carbon moves from organism to organism and eventually can end up where it started. The molecules are broken down by one organism to use, and then are built up in another one. By tracing this cycle, we can see how everything is related.

Bios 101: 10/6/07

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Bios 101: 10/6/07 Writing

In my opinion, this week's paper was not one of my better ones. Although I understood the general concepts of what the question was asking, I had a hard time figuring out how to write my ideas. In the end, I was able to answer the question; however, I did not have the twenty differ steps and ten organisms that the question requested. I think this would have been hard to fully cover in ten minutes. Overall, I think that my writing was pretty strong and that I have continued to make progress on reducing common mistakes in my papers. Again, it's the details that I need to work on more.

Organization has been one area that I have been trying to focus on over the course of the semester. Overall, the organization of this paper was good in that it had an introduction, body, and conclusion. The information within each paragraph was also fairly organized. I also did a pretty good job of bringing in examples from the environment to back up my claims. Aside from just listing the steps, I tried to include some information on how carbon is transferred and used by different organisms. This would allow someone with little biological background to understand what is going on in the carbon cycle.

As mentioned before, my biggest problems involved not answering the question thoroughly and also included some grammatical and syntax errors. I didn't include as many examples of the carbon cycle as I should have and I also have some awkward syntax as well as minor organizational issues. A lot of the sentences tend to be long and could be put together better. The voice is still somewhat casual. For example, I included a note in parentheses, which is not a part of formal writing. I also could have brought my specific campus plant, the bald cypress, into the examples more. Although I mentioned it, it doesn't really play a large role in the

cycle according to what I wrote in my paper. The general outline and ideas of the paper are good, but more attention could be paid to the details as well as fully answering the question.

The Unicorn Strikes Back (detail), 2006, oil on canvas, 96 x 96 in., 243.8 x 243.8 cm

3+7=10

BIOS 101 I-07-08 101207 Extemporaneous writing Name__
Clicker I.D. _____

Interpret this picture in terms of the carbon, nitrogen, and energy flow we have studied for the past two weeks. Include at least 15 participants.

In this class, we have been studying how energy, carbon, and nitrogen flow from one organism to the next. All animals and plants are part of this food web, with usable energy being transferred from primary consumers (plants) to other animals in the food chain. This picture gives a good graphical interpretation of how this works.

Plants and other autotrophic organisms collect energy from the sun and turn it into usable energy. The various plants, fruits, and vegetables in the picture are collecting the energy through photosynthesis. Part of it is saved and a lot of it is used to make the plant grow. Primary consumers would be the herbivores that eat the plants to gain usable energy from them. Examples of these consumers in the picture would be the unicorn, the deer, and the swans. The next level would be some type of secondary or tertiary consumer (final one). These are animals who are carnivorous or are omnivores. They too gain ~~energy~~ usable energy ~~from the~~ that originated in the sun; however, in order to gain this energy, they get it from places further removed from the original source. Notable examples of this would be the humans and dogs. The same energy that originated in the sun moves down the food chain. ~~It can~~ →

NOTE: SECOND PAGE OF 101207 WRITING NOT SCANNED.

Bios 101: 10/12/07

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The picture helps give a visual interpretation of the food cycle and how carbon, nitrogen, and energy flow from one source to the next. Energy from the sun moves to plants to herbivores to carnivores.

Bios 101: 10/12/07

In my opinion, my paper this week was average—it was better than last weeks, but I didn't think that it was one of my best ones either. I thought that I understood the prompt and was able to answer it thoroughly. While I did give some examples and tried to explain how the energy is transferred from organism to organism, I didn't include the fifteen required examples and I also didn't talk about the movement of nitrogen or carbon that much—I mostly focused on the movement of energy through the cycle. However, I think that I included as much as I could in the time I was given. Again, my biggest problem was in organization and minor grammatical errors.

There were a lot of things that I liked about this paper. Namely, I thought I did a good job of explaining how energy moved from organism to organism rather than just listing the fifteen participants in the picture. I mentioned concepts such as photosynthesis and the efficiency of energy transfer and included vocabulary such as herbivore, omnivore, carnivore, and autotrophic. By including the basic cycle of energy transfer, I made it so that a non-science person could understand what was going on. I also had a brief introduction and conclusion, which helped to organize my paper more.

There were definitely some things that I can still work on. For example, I could have expanded the introduction and especially the conclusion. As it is, the conclusion is pretty abrupt and doesn't really tie the whole paper together. The tone of my paper is still somewhat casual. For example, I used side notes to get some ideas across instead of writing complete sentences. As I mentioned before, I also didn't really talk much about nitrogen or carbon. I could have included

information about carbon skeletons, for example. Overall, I think that this paper was pretty good and that it addressed the main premise of the question.

3+7=10

Name_ ___ Clicker #ID_ _____ Date: 101907

Assignment: Fill both sides of this page with writing, answering the single question: **What do natural history museums teach?** Be sure to make your answer a general one, and use evidence from at least three exhibits or galleries. Papers will be taken up at 2:20.

Natural history museums can teach us a lot. Not only can we learn more about the natural world and the history of the Earth, but we can also get a better idea of why things are the way they are today. This can best be seen by looking at the exhibits at Morrill Hall.

For example, Mammoth Hall is the centerpiece of the museum. Here you can find skeletons from different types of mammoths, as well as those of modern-day elephants. By looking at these, we can see the different evolutionary changes of this animal over time. It's also much different to see the actual scale of the animal rather than to just see a picture of it. All of this has a large impact on you and makes you realize how much change is going on in the world and how ~~th~~ insignificant humans are when there ~~are~~ are all ~~[redacted]~~ this older life.

Natural history museums also can educate us about the history of our own state or area. Although it sometimes seems like there might not be much in Nebraska, we can see from the museum that there was a lot going on. For example, we can learn about the rhinoceras which used to live here or we can trace the development of the modern horse through

1

fossils found in Nebraska. Natural history museums can also give us a better idea of what is currently going on in our state.

Museums also teach us about the present and what could happen in the future. There is a section of the museum that shows different models of spacecraft, as well as a planetarium. These are especially good exhibits to pique a child's interest because space has always been fascinating.

Natural history museums can also be used to educate. For example, the photography gallery has an exhibit which talks about humans' impact on the environment. A museum is an ideal place for this type of education because they have so many examples & they can show people. As mentioned before, seeing the evidence close up is much more powerful than only seeing pictures of it.

Museums also educate us about other cultures. There is an exhibit in Morrill Hall that talks about Native Americans and includes examples of crafts and tools that they used. Having exhibits like these exposes people to other cultures and ways of life and can be used to open people's minds. Obviously, the world could use more people who understand and respect different cultures.

Museums can also help us understand evolutionary history and genetics. There is an exhibit which discusses the similarities between seemingly different organisms, evolution, and recent advances in genetic research. It's important for people to become informed about these things and to be able to get the facts.

In short, natural history museums have a lot to teach us if we take the time to look. I love visiting museums and can spend a lot of time in them and still learn something new each time.

Bios 101: 10/19/07

Natural history museums can teach us a lot. Not only can we learn more about the natural world and the history of the Earth, but we can also get a better idea of why things are the way they are today. This can best be seen by looking at the exhibits at Morrill Hall.

For example, Mammoth Hall is the centerpiece of the museum. Here you can find skeletons from different types of mammoths, as well as those of modern-day elephants. By looking at these, we can see the different evolutionary changes of this animal over time. It's also much different to see the actual scale of the animal rather than to just see a picture of it. All of this has a large impact on you and makes you realize how much change is going on in the world and how insignificant humans are when there are all this older life.

Natural history museums also can educate us about the history of our own state or area. Although it sometimes seems like there might not be much in Nebraska, we can see from the museum that there was a lot going on. For example, we can learn about the rhinoceros which used to live here or we can trace the development of the modern horse through fossils found in Nebraska. Natural history museums can also give us a better idea of what is currently going on in our state.

Museums also teach us about the present and what could happen in the future. There is a section of the museum that show different models of spacecraft, as well as a planetarium. These are especially good exhibits to pique a child's interest because space has always been fascinating.

Natural history museums can also be used to educate. For example, the photography gallery has an exhibit which talks about humans' impact on the environment. A museum is an

ideal place for this type of education because they have so many examples they can show people. As mentioned before, seeing the evidence close up is much more powerful than only seeing pictures of it.

Museums also educate us about other cultures. There is an exhibit in Morrill Hall that talks about Native Americans and includes examples of crafts and tools that they used. Having exhibits like these exposes people to other cultures and ways of life and can be used to open people's minds. Obviously, the world could use more people who understand and respect different cultures.

Museums can also help us understand evolutionary history and genetics. There is an exhibit which discusses the similarities between seemingly different organisms, evolution, and recent advances in genetic research. It's important for people to become informed about these things and to be able to get the facts.

In short, natural history museums have a lot to teach us if we take the time to look. I love visiting museums and can spend a lot of time in them and still learn something new each time.

Bios 101: 10/19/07 Writing

I think that I did a good job on this paper. First of all, I'd like to say that I really liked the topic. I'm one of those people who really enjoys going to museums and I had no problem wandering around in Morrill Hall for an hour. I also enjoyed having a different class structure. We should have class there another time. Having an hour to right also helped. Although it didn't take me nearly that much time to right, I felt a lot more relaxed and I felt that I was better able to organize my ideas. I also had no problem answering the question. It was pretty straightforward and there were plenty of examples in the museum to back up my ideas.

Overall, I think that there were a lot of good things in my paper this week. As I mentioned above, my organization was better this week. Instead of having just a few long paragraphs, I split my ideas into separate paragraphs, with a different topic being discussed in each. I also had an introduction and conclusion. I also did a good job of addressing the question and went beyond the three examples required for the assignment. I also made sue to use examples form the entire museum. My answer was also pretty thorough as I tried to cover a large spectrum of possible educational uses for a museum. In general, my paper was well-written and answered the question being asked.

However, there were still minor issues in this paper. A recurring problem for me has been voice. At numerous points in this paper, I used the second person (you, etc.). This made the whole paper rather disjointed because I switched points of view. I also have a problem of saying that an exhibit "talked" about something. This, of course, makes no sense as exhibits can't talk and my paper would sound better if I stayed away from phrases like this. There were a couple of contractions in my writing, which also makes the paper seem more casual. I also spent relatively little time giving a general answer; instead, I moved right into the examples and explained as I

went. While this method worked out, it might have been a better idea to set up the paper with a general answer more before I moved into the specifics. Overall, I think that I did a good job on this paper.

3 + 7
= 10

10125/--.

My favorite campus plant is the bald cypress, or taxodium distichum. It is a little bit confusing to figure out what family to place this tree in because some authors or scientists don't consider the taxodiaceae (bald cypress or redwood) family to be a separate family and instead group the bald cypress with the cupressaceae (true cypress) family. These two families are fairly similar, so I will give a brief description of each.

The taxodiaceae family includes the bald cypress and redwood trees, but is considered to be a subset of the cupressaceae family. This family includes both evergreen and deciduous trees. This family also contains the largest trees on Earth. Various species can be found all over the world, but the bald cypress is mainly found in the southeastern United States. In general, members of this family can live for a long time, have dark green, needle-like structures, and are gymnosperms, meaning that their seeds are found in a cone.

Cupressaceae is the family which many believe the bald cypress actually belongs to. It is a much larger family, comprising of around 30 genera and 130 species. Cupressaceae is the most widely distributed conifer family and can be →

Bios 101: 10/25/07

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Cupressaceae is the family which many believe the bald cypress actually belongs to. It is a much larger family, comprising of around 30 genera and 130 species. Cupressaceae is the most widely distributed conifer family and can be found all over the world. Members of this family are used for both timber and ornamental purposes. Most of these plants also have needle-like leaves and seeds located in cones.

Although much more could be said about the bald cypress's family, this is just a general overview. It is interesting to note that through genetic study is has been pretty well established that the taxodiaceae family is really just a subset of the cupressaceae family. This is an example of the dynamic nature of science and how new evidence can change old ideas. The bald cypress

belongs to a family with widely distributed members, needle-like leaves, and species that can survive for a long time.

Bios 101: 10/25/07 Follow-up Writing

I would say that this paper was of average quality. While I answered the question correctly, there is nothing that stands out in particular with this essay. I thought that this was an interesting question in that it made me think about the similarities between my favorite campus plant and others like it. As with last week, time was not an issue for me as the paper was written outside of class.

Because I did this completely out of class, I feel that this paper was pretty well-organized. I had a clear introduction and conclusion—more so than I usually do when the writing is done in class. I also made sure that I answered the question completely. One way in which I did this was to include some information on the switch of family classification for the bald cypress. I though that it was interesting that recent research has shown that taxodiceae is really a subset of the cupressaceae family and that scientific information is being modified to fit the new facts. Other than this idea, I included some basic facts about the appearance and location of the bald cypress's family. I still included both the taxodiceae and cupressaceae families because there are some slight variations within them. I also made sure to get my information from a variety of reputable sites, such as government and university ones.

There were some small spelling and grammatical errors in this paper. For example, I wrote "is" instead of "it." It is small mistakes like these that I could change and if I had proofread better before handing my paper in, these mistakes would have been caught. I also think that I could have included some more specifics about the family because I mostly just covered the generalities of the family, but didn't really go into any real detail. I also think that I was a bit repetitive with my information. If I wanted to talk about both the cupressaceae and the

taxodiceae, I should have included unique facts for both of them; instead, there are similar facts, just in two separate paragraphs. Overall, I did a decent job on this paper.

3 + 7 = 10

BIOS 101 I-07-08 110207 Extemporaneous writing Name_

Describe at least ten different phenotypic differences between your individual plant and an individual plant of the same species that is found elsewhere on campus. If there is not another plant of the same species, then select the most similar second plant. Make sure to tell me exactly where these two plants are located.

The phenotype describes the physical characteristics that are manifested by genes. Different genes will produce different phenotypes, even within individuals of the same species. Such is the case with the bald cypress. There are two of these trees on campus (that I have been able to find). Bald cypress #1 is located near a path behind the administration building and bald cypress #2 is located near a corner at the back of Merrill Hall. If you look closely, you can see some differences between the two plants.

Bald cypress #1 is slightly shorter than tree #2. ~~It's~~ Its branches are also more spread out and kind of lopsided. Overall, to me, it seemed like this tree was slightly less healthy than the other one. Bald cypress #2 was taller and seemed ~~more~~ straighter with more compact branches. Both trees leaves are changing color from a green to a rusty brown color, but it appeared that tree #1 had slightly more green leaves left. The shape and size of the leaves and the appearance of the trunk was similar to each other, at least from what I have seen walking past.

A related item is the idea of the environment affecting the appearance of organisms. For example, tree # 2 is the tallest

Bios 101: 11/2/07

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A related item is the idea of the environment affecting the appearance of organisms. For example, tree #2 is the tallest tree in its area and is not crowded by other trees. It is also sheltered by the building. These would have an impact on how the trees have grown and could have affected the appearance.

Overall, the phenotypes of the trees are different, especially if one observes them closely. Looking at the phenotype allows us to see how genes are manifested differently.

Bios 101: 11/2/07 Follow-up

Overall, I would say that the quality of this paper was average. I answered the question correctly, but could have included more details in my response. I thought that it was a good question because it made me think about the differences between organisms and it forced me to actually study the campus plants to figure out what the differences between them were. The writing was fairly focused and organized this week; there were still some minor grammatical errors that could be fixed though.

I made sure to study both of the bald cypresses on campus so that I would have something to write about and I included the locations of each, as the question asked. I included specific differences between the trees, but also included some of the similarities. Another good thing about my paper is that I included some information about the environmental impact on an organism's growth. Although this was not part of the question, I thought that it was important to include because the environment could account for some of the differences observed between the two trees. However, I only included a very brief section about it, so there is not much detail. This paper had a good introduction; however, the conclusion could use some work. I ran out of time, so it is more of a concluding sentence than a real paragraph. This could be expanded upon if I were to go back and rewrite this paper in its entirety.

As mentioned before, there were some small grammatical and sentence fluency errors. For example, I forgot the apostrophe for "trees' leaves". This is minor, but could still be fixed. Some of the sentences are also awkwardly worded. An example of this would be "The shape and size of the leaves and the appearance of the trunk was similar to each other, at least from what I have seen walking past." This sentence could be worded differently to make it easier to read.

This brings me to my next point: use of the wrong point of view. Although this is a casual paper, I would prefer that it maintained a more professional viewpoint. I noticed that quite often in this short paper, I used words like “I”, “me”, and “you.” If these were taken out, the whole paper would sound better. Overall, the quality of the paper was fine, but there are still some issues that I could work on.

(Extemporaneous writing for 110907 was a pop quiz on genetics, specifically a question about determination of genotype. The follow-up involved the three questions about teaching of genetics in a large introductory class.)

3 + 6

11/9/07

You would use a testcross, in which this organism would be crossed with an organism that is recessive for all traits. Depending on whether the Punnett square showed certain genotypes or not and you could find out from that. In one, A and B would be linked and in the other it wouldn't.

Way of learning. It [illegible] understand then can go back to the instructor for extra help.

BIOS 101 110907 Extemporaneous writing Name__

Answer the following three questions in the space provided:

(1) What is the most effective way for an instructor to teach genetics in a large auditorium?

The point of lecture is for the instructor to provide a basic understanding of the material. In teaching genetics, this would mean explaining vocabulary and the science of genetics. Another important part would be to go through sample genetics problems because I think that genetics is a discipline that is easier to understand if you have a visual representation of what is going on. A large part of the problem of lectures is that a lot of people don't pay attention, but short of having pop quizzes, it is hard to make students listen if they don't want to.

(2) What is the most effective way for a student to learn genetics?

Discussions in lecture are a good way for the instructor to introduce the material to students, but I think that students then need to take the initiative to master the material themselves. This would mean working on practice genetics problems and reading the textbook. While lecture is good, actually working through problems individually allows students to know where their strengths and weaknesses lie. If the student is having trouble, he should either study with another student who knows the material better or seek help from the instructor.

(3) Are these two approaches to teaching and learning the same, and if not, then why not?

I think that these two approaches are complementary to each other, but they are not the same. The material is introduced in lecture, but students are participating passively. Students should then go home and either go over material they didn't understand in lecture or should work on getting to know the material really well. Either way, it is a more active way of learning. If there is something they still don't understand, they can go back to the instructor for extra help.

Writing assignment for weeks 12 and 13 involved use of the Sheldon Memorial Art Gallery and interpretation of works in terms of biological ideas. The specific assignment handed out in class and posted on Blackboard is given below:

Writing instructions for the Sheldon Assignment, I-07-08:

(1) This assignment is to take the place of two Friday extemporaneous writing assignments, numbers 12 and 13. You have until November 30 to turn it in, and you may do it with one other individual. If you and another student do the assignment together, be sure that both students' names are on all pages and that the pages are numbered.

(2) Here is the assignment: Choose five different pieces of art from inside the Sheldon Gallery or from the campus Sculpture Garden, in at least three different mediums. Use these five pieces as your material for writing on the subject "the big picture in biology as it must have been understood by the artists." The Big Picture PowerPoint show and pdf files are still up on Blackboard, and a document version of the Big Picture in Biology will be up on Blackboard and will be e-mailed to you. Take only a notebook and a pencil into the galleries.

(3) Any papers that are not in my possession by Friday, November 30, at 5:00PM will receive a zero. I am not accepting any e-mail or electronic submissions, including those in Digital Drop Box.

(4) The papers must be hard copy, double spaced, and stapled at the upper left hand corner. They must include at least four pages of typing plus a page listing the art pieces used. You are allowed one sentence maximum to name and describe each of the pieces you use in your essay.

(5) You may not once mention agriculture, health, the military, family, politics, sex, sports, or religion in your papers.

(7) In order to get credit for this assignment, the form below must be turned in to the Sheldon security staff, or the Sheldon office, and the Sheldon staff must be instructed to put these forms in the mailbox of the Education Coordinator.

_ _

BIOS 101 Janovy I-07-08 Big Picture in Biology assignment

Name(s)_____

Date(s) visited the Sheldon Gallery and/or sculpture garden_____

Time spent in the galleries or sculpture garden_____

Sheldon Security Staff: **Please return this form to the Education Coordinator. Thank you very much! - John Janovy, Jr.**

Writing instructions and advice:

Now that I've read several hundred pages of your writing, it's time to pass along some general comments that may be of help not only during the rest of the semester, but also in other classes as well as in your employment beyond graduation.

- **Word usage:**

Below are some words that often are used incorrectly in student writing. Use these words correctly and you will get better grades than if you use them incorrectly.

it's = it is, not the possessive pronoun (e.g., It's a red car).
its = the possessive pronoun (e.g., The red car had its oil changed.)
their = the possessive pronoun; *there* refers to a place (e.g., They took their cars there to get the oil changed).
a lot – Alot is not a word; a lot is two words (e.g., "I like my red car alot." is not a sentence; "I like my red car a lot." is a sentence but not a very literate one.)
your = the possessive pronoun (e.g., I like your red car.)
you're = you are (e.g., You're going somewhere in your red car.)
amount = a word that refers to quantities that you measure with weight and volume (e.g. Your red car saves a small amount of gasoline compared to my old truck.)
number = a word that refers to discrete quantities that you count (e.g. Your red car has a low number of miles on it, even though it has a large amount of space in the trunk.)
went = the simple past (preterite) tense of *to go*. (e.g., The red car went around the block three times before the driver realized it had a flat tire.)
have gone = the present perfect tense of *to go*. (e.g., I have gone to the grocery store in your red car. See http://en.wikipedia.org/wiki/Grammatical_tense#English_tenses for examples of usage. The use of "have went" either in spoken or written English is a glaring mistake.)
wrote and *have written* = See the same comments as for went and have gone above.
since = a reference to time. (e.g., It has been a year since I had the oil changed in my red car.)
because = a word to refer to a reason or cause. (e.g., Because it had been so long since the oil was changed in my red car, the engine exploded.)
while = a reference to time (e.g., I had to wait two hours while the guy tried to change the oil in my red car.)
although = a word to indicate an alternative or comparative situation (e.g., Although I had to wait two hours while the guy tried to change the oil in my red

car, he did a pretty good job of telling me about Husker football while he worked.)

whereas = a word that can be used in many of the same contexts as *although*; i.e., as a replacement for *while*.

research = a word that is best used as a noun (e.g., I'm going to do some research on why red cars are more popular than blue cars.)

study = a word that can be used as either a noun or a verb (e.g., I'm going to study that Department of Transportation study about the safety of red cars.)

- **Format**:

The art citations in your bibliography must be in the format given below. This one is only an example, but note that it includes all the information given on a label had the piece been on display.

Newman, Barnett. 1949. *Horizon Light.* Painting; oil on canvas. UNL-Gift of Mr. and Mrs. Thomas Sills

- **Writing advice (or, How to get better grades on your written assignments not only for BIOS 101, but for other classes as well)**:

(1) Use some clean, standard, font (Times New Roman, Arial, MS Sans Serif) instead of a fancy one; set type size at 12 pt; make sure your printer makes dark copy.

(2) Check each sentence to make sure it is complete (subject, verb, object) and that verb tense matches the subject.

(3) Check for typing errors, especially those that occur over and over again (which are really spelling errors).

(4) Turn on your spell-check and grammar-check options on your word processing program and follow up on the suggestions, especially in cases of red underlines indicating misspelled words. Also, get and use a good dictionary. Be careful about what word processing programs say about grammar, however.

(5) Turn off your right justify.

(6) Write your paper(s) soon enough so that you have time to let them sit for a day or two prior to their due dates, then read them again with a fresh eye toward style, grammar, spelling, etc.

(7) The text should average about 2.5 paragraphs per page.

(8) Follow format instructions and examples ***exactly***; these instructions are provided because faculty members must write their professional papers according to these kinds of instructions, and therefore find papers written this way easier to read. In addition, if you ever decide to publish an undergraduate research paper, you will be required to follow some journal's format instructions exactly or the paper will probably be returned to you (as they will in this class) for re-writing prior to review.

(9) See Chapter 6, Papers, in OUTWITTING COLLEGE PROFESSORS for advice on maximizing your writing skills and grades. (free download at http://bsweb.unl.edu/labs/janovy)

THE BIG PICTURE IN BIOLOGY: Take home lessons from BIOS 101 (with JJ's personal comments in parentheses):

"The natural world need not be logical in any obvious way. Science does not consist of imposing our reason on the world but rather reducing our preconceptions to the point that the world imposes its logic on us. This is very difficult indeed, involving a minimalization of our ego while maintaining our full powers of observation and receptivity. The capacity to perform this feat is what the teacher of science attempts to foster in the student. No one succeeds completely."

--L. Slobodkin (from *Simplicity and Complexity in Games of the Intellect*)

I. Earth is the only planet in the universe actually known to support life.

(Get ready for a BIG surprise if life is discovered elsewhere, but in the meantime, don't be short-sighted and stupid about how you interact with this planet.)

II. Life on Earth is characterized by enormous diversity superimposed on great uniformity.

(Uniformity is in DNA structure, metabolic processes, etc.; diversity is in the massive number of species that occupy the planet.)

III. Evolution is the best general explanation *science* has for life's enormous diversity superimposed on great uniformity.

(That's why it's the central unifying theme of the discipline.)

IV. The vast majority of species that have ever lived are now extinct.

(It's real easy to be naïve and arrogant about our own, mainly because we're so smart, but the evidence for IV. is *very* convincing.)

V. There is a staggering amount of scientific evidence that virtually all things in the universe have a beginning and an end, and our solar system is probably no exception.

(The term "virtually all things" includes everything from individual lives, to nations and civilizations, to planetary systems, stars, and galaxies.)

VI. The present distribution of life and other natural resources is a result of several billion years of planetary change (evolution, both geological and biological).

(That distribution has significant social and political consequences, and so to some extent, your daily headlines are a result of planetary forces at work, forces over which you have no control and did not make happen.)

VII. *Science* is different from *Technology.*

(Science and technology both require fundamental knowledge of nature, but technology seeks to *control* nature, while science seeks to *understand* nature. Control is not necessarily "good;" understanding is not necessarily "bad." It's what humans do with their control and understanding that make *humans* "good" or "bad.")

VIII. Many of our most difficult social and political problems have a major biological component:

(The list of these problems includes racism, sexism, unwanted pregnancy, global energy distribution, intellectual and cultural richness, the definition of "human being," narcotics, global water distribution, genetic "engineering" and its consequences, infectious disease evolution and transmission, our relationships with insects, etc. Such a list could go on for several more pages.)

IX. You are surrounded by biological information, but you need to take the time and effort to look for, then use, it.

(Your life, and the lives of those around you, will be greatly enriched by such awareness; after all, life is *the* characteristic that sets Earth apart from other planets and, insofar as we know, all other planetary systems.)

X. The scientific and technological explosion is not going away any time soon; it's better to be educated than ignorant about all scientific and technological issues.

(For one obvious example: the information technology you use hourly is taking away your privacy, and re-defining what it means to be a human, about as fast as it can be done.)

Student's response:

Biology Reflected in Art

As the old saying goes, art mimics life. Although this is typically used to explain the human experience, it can also be applied to the biological world. Initially, there is a difficulty in interpreting how science is expressed in artwork because society and culture view art and science as two fundamentally opposed fields. However, after researching the intentions behind the artists' works, it is easy to come up with biological influences behind the art. Many of these artists are inspired by what they see because art is a sensory medium and even the simple act of seeing is based in biology. More than one aspect of the "Big Picture of Biology" shows up in each individual piece of artwork. From the limitations of natural resources to the ideas of evolution and genetics, these concepts come up over and over again if one studies the artwork closely. Even the act of studying these pieces includes a biological component. Following are five different pieces of art chosen to demonstrate these concepts.

The first painting, *Battle of Lights, Coney Island*, by Joseph Stella is part of the UNL's permanent collection and is an abstraction of Coney Island with the lights beiung the dominant focus in the picture. This painting is a good example of the explosion of technology and how it interacts with the greater world. As the artist himself says of this painting, "I built the most intense, dynamic arabesque that I could imagine in order to convey in a hectic mood the surging crowd and the revolving machines generating for the first time" (Discovery of America: Autobiographical Notes). The artist was trying to give a visual representation of how technology was becoming such an integral part of modern society. Due to technology, people are able to manipulate the capacity of the Earth to a certain extent. As this has been done, technology has taken on a greater role and has come to be seen as able to supersede nature. The artist described

himself as “thrilled with the new world of steel and electricity” (Discovery of America: Autobiographical Notes). This is the view of many people as they have come to see what technology can do for them. Ultimately, nature has the final say. This is exemplified in recent natural disasters, such as the cyclone in Bangladesh and the earthquakes in Chile, which humans are still unable to prevent—even with the extensive use of new technology. Nature is still able to push back.

The second painting, *Phoenix*, is an example of social surrealism in which a desert landscape includes a pile of junk, a picture of Lenin, and an oil well. This painting deals with many big ideas in biology. This is a strange combination of objects, but helps impart the idea that humans tend to look at what is in front of them and accept that as the whole reality instead of looking at what else is possible. People have a very limited viewpoint or outlook and tend to overemphasize their own importance. This relates to the biological big picture because humans often do not stop to consider that there is much we do not understand about the natural world and that the natural world is much more than just a source of use for humans. Earth and its contents are just a small portion of the universe and man cannot claim to know everything. The painting depicts concrete things like human knowledge, but there are parts that are considered in nature represented in the painting by an imaginary easel holding Lenin’s portrait. This does not really make sense, but forces the viewer to think about alternative possibilities that might not have been thought of otherwise. Everything does not revolve around human understanding. Looking at abstractions furthers our knowledge. For example, Gregor Mendel did not understand chromosomes or DNA synthesis, but he was still able to come up with the key ideas of inherited traits. We should keep an open mind and not rule things out until there is concrete evidence against it.

The third piece, the *Oil Barrel Bench*, by Jason Middlebrook, is a sculpture made out of wooden planks and two oil drums. This piece is a symbolic representation of the biological big picture. It shows the juxposition between what nature produces and how humans use it. There is only a finite amount of resources on the Earth, which have taken millions of years to form. Humans tend to go through these resources at a very fast rate that is not sustainable in the long run. Much of Middlebrook's work deals with the interactions between man and nature and as a press release said about his work "We are reminded of man's uncompromising footprint of Earth" (Press Release for Jason Middlebrook). Humanity's disruption of nature changes the natural evolution of the Earth by altering what is saved or used. Through progress, we are encroaching on natural resources and bringing social and political problems upon ourselves. For example, the melting of the ice caps and climate change has probably been accelerated by human interference and lack of respect or understanding for natural resources. This sculpture reminds us of the fact that wood and oil are resources used every day, but many people don't recognize that. Perhaps this piece can persuade people to be more conscious of what they are doing to the Earth.

The fourth piece, *Cabo Homes*, by Tom Bamberger, shows a row of homes which appear to be the same, but actually have small differences between them. This is an ideal representation of the biological idea that life on Earth is characterized by enormous diversity superimposed on great uniformity. Although the basic structure of the homes is the same, their personal touches make them different. This is similar to the idea that the basic structure of organisms is composed of the same types of DNA structure and metabolic structures, but the multitude of species makes our planet very diverse. The similarities support evolution because it shows that the underlying components that are the same are impacted by environmental changes. This relates to the photograph of the house because the cosmetic changes that the owners make to their homes are

what make each home phenotypically unique. Although their underlying structure is the same, they are changed by their environment. This is the same with organisms who have adapted to their environments and become phenotypically differently, although they have similar genetic components. Furthermore, “By blurring the line between his digital alterations and the existing shape of the landscape, Bamberger questions the nature of repetition, arguing that there is little difference between, for example, DNA’s reproductive process in a forest or field and the computer cloning that his work depends on” (Tom Bamberger). Even when the subjects of art and science seem to be unrelated, an argument can be made that the two are actually very similar.

The final piece of art, *Fallen Dreamer*, by Tom Otterness, is a large bronze sculpture of a human head. Although this sculpture is not currently in Lincoln, we have both seen it in person before and felt that it exemplified the big picture of biology well. Although the artist is an American, he has been influenced by other cultures; in this case, the ancient Olmec culture. Influences from other cultures largely exist because of cultural isolation, which allowed various societies to develop independently. Although humans were not around at the time of the breakup of Pangaea, a hypothetical situation in which this event never occurred would probably have resulted in not very diverse cultures because proximity would have made all cultures develop very similarly. Because of cultural isolation, in which groups of people were cut off from others through geography, numerous cultures developed. However, cultural evolution can occur when one culture injects some of its beliefs into another one. This changes the organization of the second culture in some way and can be considered an analogy to genetic evolution. The aspects of culture act as genes which are injected into different societies (organisms in the natural world) thus changing the phenotype of the culture.

In conclusion, major biological concepts are present in every piece of artwork if one looks closely enough. In Stella's piece, one can see the explosion of technology and extrapolate that humans have tried to master nature, but have not yet been successful. In Guglielmi's work, one can see that human experience is only a small part of the natural world and that it is more important to have an open mind and explore the facts and possibilities before coming to any conclusions. In Middlebrook's piece, one can see that natural resources are limited and that humans need to continue biological research and strive to understand nature more so that some social and political problems can be analyzed more carefully. In Bamberger's piece, one can see that great diversity is superimposed on great uniformity. In Otterness' piece, one can see that cultures can interact and evolve, much like genes and phenotypes can move between populations of different organisms. By taking a closer look at some artwork, it is easy to see that biology is everywhere if people only take the time to look for it.

Art Bibliography

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Writing assignment for 120707 was to answer questions about the value of these weekly extemporaneous writings and their possible use in the future.

Extemporaneous Writing 12/7/07

1. Although I was not particularly excited to do these timed writings at the beginning of the semester, I would say that they have helped me with seeing the overall value of biology. I think that the use of these writings is especially interesting in a biology class because writing does not seem to be at the top of the priority list for many science classes. When people usually think of biology, they think of labs and scientific experimentation, but I don't think that they necessarily look at the overall impact that biology has on daily life. While these writings certainly didn't cover every possible way that biology affects our daily life, they did help me to recognize that biology is, in fact, widespread. By doing the writing assignments, I was also given the opportunity to prove that I knew something about biology beyond basic memorization. The writings, if done correctly, required critical thinking and applications of biology beyond the classroom. That said, there were some writing prompts that I found more value in than others. In conclusion, not only do the writings allow students to apply biological knowledge in a unique way to the outside world, but they also help develop writing skills in a scientific setting, which I do not think occurs in very many science classes.

2. Although these writings have had an impact on my communication skills, I would not say that the impact was that great. I would consider myself to be a fairly good writer, most of the time, and I didn't see any very drastic improvement over the course of the semester. That said, I usually don't spend that much time rereading papers that I have written, so the follow-up writings were good in the sense that they forced me to analyze my work and make corrections to future papers. I think that the aspect of communication skills would have been more helpful students had exchanged papers. Obviously, I know what I was trying to say in my papers, but have no way of knowing if others who might have read the same paper would have been able to see the conclusions that I was attempting to draw. Peer editing might have helped with that.

3. Overall, I would say that the set-up for these timed writings is pretty good. As mentioned in the previous question, I think it would be more conducive to developing communication skills if students got feedback from other students about how they are doing. This sort of peer editing would allow students to know where their strengths and weaknesses lie in a more objective manner and would allow them to know how their communications come across to others. While the prompts that we had were good, another possibility would be to include prompts that required students to look at current events or social problems and see the biology present in them. I think this would be a good way to give the big picture of biology beyond the UNL campus.

4. Yes, I would say that the resources utilized in these writings, like the landscaping and museums, helped me to see how biology plays a role in everyday life. Although I would

have gone to the museums, regardless of having an assignment that dealt with them or not, I probably would not have paid as much attention to the plants on campus as I did due to these writings. Therefore, including the campus plants in the writings was good, although I would say that the prompts centered on the plants to-o often and a wider variety of prompts that included biological concepts from beyond the confines of the campus would be good to include in the writing assignments.

Overall extemporaneous Writing Self-Assessment

Overall, I think that I did a good job on the extemporaneous writing assignments. While I didn't always enjoy doing them, especially at the beginning of the semester, I appreciate the fact that they made me think about biological matters in a different matter than usual. At the beginning of the semester, I had a somewhat hard time getting my thoughts organized and my paper written in the time given at the end of class. However, by the end of the semester, I had become used to this format and I think that the writings did help me to understand how to combine ideas and use critical thinking to evaluate biological concepts. I think that they are an important part of the course, in that they provided another way for students to get points and apply their learning in a unique way.

Each week I completed the required writing in class, typed it up, and wrote a self-assessment about how my work was that week. I took the assignments seriously and each week tried to come up with some meaningful analysis of my work that would allow me to improve my skills. While it was helpful to me to do the actual writing, it seemed like I got more out of the follow-up analysis. When I went back and looked at my papers later, I was able to find grammatical errors, organizational errors, and ways that I could lengthen my writing into a full-length paper. I then kept these things in mind when doing the next week's writing. In my opinion, all of my writings were pretty good, although there is a slight improvement in my writing over the course of the semester in terms of organization and grammar.

I would have to say that my favorite writing assignments were the ones that involved Morrill Hall and the Sheldon Art Gallery. I found these to be the most interesting because they included a wide variety of information that could be used in the writings. I thin that they required

students to have the greatest grasp of the material because there really were no specific guidelines that were supposed to be followed in terms of answering the question-ns. This required me to really be able to analyze the data and draw my own conclusions from it. Overall, I believe that I did a good job on the extemporaneous writing assignments and I think that they are a good way to apply biological information to the outside world.

Overall self-assessment of my performance in the course:

Overall, I would say that I did a good job in this class. As I have mentioned in my previous assessments, I tried to complete all assignments accurately and thoroughly. Right now, my final grade estimate is an A, which I believe is an accurate representation of the effort that I have put into the class. I have attended all the lectures so far and have read the relevant chapters for each unit. I also completed all of the writing assignments to the best of my ability and tried to analyze my work so that each successive assignment would be better written.

Because the writing and tests were the main indicators of success in this class, I will discuss how I did on these a little more. My three test grades were decent. Although I did well on them, I feel that I should have done better. Looking back at the questions that I got wrong, I realized that, in most cases, my errors were due to careless mistakes and not because I hadn't studied enough. I tend to overanalyze questions and make them more difficult than they need to be, so in the future I will have to be more conscious of this problem in order to fix it. The other major area in this course was the writing assignments. Although I was not particularly excited to do these timed writings at the beginning of the semester, I would say that they have helped me with seeing the overall value of biology. To be honest, I was not expecting to write that much because this was a science class. However, I did my best on the writing and I think that my extemporaneous writing abilities have improved over the course of the semester.

Of course, a good measure for my performance in this class would be to analyze how much I actually learned. I found that , over the course of the semester, most of the material was a review of concepts that I learned in my high school biology and biochemistry classes. This makes sense because Biological Sciences 101 is a general biology class and should be covering

concepts that I have at least heard of before. It was good to cover the material a second time because there were some concepts (like cell respiration and photosynthesis) that I had forgotten how they worked. However, there were some major aspects that were new to me. For example, this course seemed to emphasize the "big picture of biology" quite a lot. Through the writings and some of the topics discussed in class, I came to realize how much biology can apply to various aspects of life. I really enjoyed this aspect of the class. Although I would have realized this on my own if I had thought about it more, this class forced me to recognize it and apply my knowledge in unique ways. I also learned quite a lot from the genetics unit. Although I had covered basic Mendelian genetics and the cell cycle in previous classes, I spent more time on these concepts in this class. I found genetics to be quite interesting and am planning on taking a genetics class later in my academic career.

Obviously, what I have learned in this class can be applied to other classes and life in general. Although I am almost done with this biology class, I intend to continue taking biology classes. Next semester I am registered for Cell Structure and Function, which I think should be interesting, and I hope that my schedule will allow me to continue to take some more biology classes during successive semesters. Although I am not planning on majoring in biology, I have always have had an interest in science, particularly in biology. Therefore, I would like to continue taking the relevant classes, reading about it, and experiencing and recognizing the presence of biological concepts in everyday life. The major scientific concepts covered will also be applicable to other science classes, such as chemistry and biochemistry, which I will be taking as part of the pre-medicine program. The critical thinking concepts emphasized in the writings will help me in all areas of my classes because critical thinking is a skill that can be adapted for any situation. Knowing how to analyze a problem and look at it from different angles is a

valuable skill that can also be sued in everyday life and in a career after college. All in all, I am glad that I took this class. I feel that my overall performance in the class was good and that I got as much out of it as I put in.