Biotechnology and Human Values
Human Biology 205
Fall 2011

Lecture (10288): 3:30-4:50 p.m., Tu, & Th, ES 328

Instructor: Dr. W. Johnson, LS 451
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465-2275

Office Hours: 12:35 - 1:30 p.m. MWF
or by appointment
Web site: http://www.uwgb.edu/johnsonw/

Required Books: *The Language of Life, DNA and the Revolution in Personalized Medicine*, F. S. Collins, Harper Perennial, 2010.
Solzhenitsyn, A Soul in Exile, J. Pearce, Baker Books, 1999.

Optional Book: Any recent edition of the following textbooks would be a helpful resource: general biology, genetics, cell biology, molecular biology, or microbiology.

Prerequisite: Intro to Human Biology (HUM BIOL 102) or Principles of Biology I (BIOL 202).

Last day to drop course: Monday, October 17

Course Objectives: This course examines the impact of biotechnology on humans and society. You will learn detailed background information on several social issues that are a consequence of the use of biotechnology. We will examine moral and ethical concerns raised by the application of biotechnology. Many of the topics we will be examining and discussing are complicated as well as controversial. You are encouraged to disagree with me and with your student colleagues in class using factual information and logical arguments.

A Writing Emphasis Course: A total of three papers are to be written. Essays are to be uploaded as "Word" documents at the course D2L "Dropbox." Each paper is to be 600 or more words long. Margins may be 0.5 inches and single spacing is acceptable. Place a title at the top of each essay, as well as your name and the date due. Be concise. Use a minimum of words to effectively convey your message. References are to be listed at the end of the paper and numbered 1, 2, 3, etc. When indicating a reference in the text, place the corresponding number in parentheses, e.g., (2). Use the APA style for electronic references in your numbered reference list. It is acceptable to use web page addresses as references. **Late papers lose 8 points for each 24 hours after the time when it was due.** To avoid a late penalty you may request an extension on the due date of up to one week by sending an e-mail request to me.

It is important to do more than simply tell your opinion. Uninformed opinions are not worth writing about. The essay needs to be a thought out perspective. It needs to be carefully constructed with the evidence organized to form a coherent logical argument. In order to obtain an A on your paper, it must be both artistically and technically well crafted. It must be well organized, show considerable personal thought, be properly documented, make clear and concise use of language, show a proper understanding of pertinent science, and have a conclusion that is a logical consequence of the text. Creative writing styles and formats are encouraged!!!

Do not write about your experience in doing the assignment. Do not use phases such as:

"...after reviewing material for this topic I became aware of...",
"...because of this course I now...",
"...the first thought that I had was...",
"...something very interesting to me is...",
"...studying this material has caused me to..."
"...I was looking for..."

The play-by-play story of what I learned today is fine to share with my family at night or to write in a diary, but it is seldom appropriate for a formal writing assignment.

Grading criteria for written work:
20% writing quality (clarity of narrative, grammar, sentence structure)
20% organization
20% depth of analysis and personal thought
20% use of outside sources
20% other

Papers: Upload as a Word document at the D2L Dropbox **before 11:00 p.m. on the due date**.

#1. Science and Human Rights: Possible topics include: eugenics, experiments on humans without informed consent, biological weapons, genetically designed babies, cyborgs, genetic testing for disease, genetic testing for intelligence, vaccines, human cloning, testing potential therapies for human immunodeficiency virus (HIV) infection in Africa.

Evaluate an issue or advocate a policy concerning science and human rights. If you advocate for a policy, then you must address common objections and concerns in your paper. Include a minimum of three references. Due Tuesday, September 13 (50 points). Note: Your paper must be on an application of science. Neither abortion for social reasons nor the death penalty is science and therefore they are not acceptable topics for this assignment. Selective abortion based on genetic testing is an acceptable topic.

#2. Solzhenitsyn: Read *Solzhenitsyn, A Soul in Exile*. Prepare an essay that examines an aspect of Solzhenitsyn's life or his message. This essay may be different from your group discussion topic (see below). Include a minimum of three references in research type papers. As an alternative you may write a reflective essay or a poem that explores something that comes from the life of Solzhenitsyn. Poems must show creative effort greater than what is needed to write a paper and may be less than 600 words. Due Tuesday, November 1 (50 points).

#3. Biotechnology: Describe a promising development, evaluate an issue, or advocate a policy concerning an application of biotechnology. If you advocate for a policy, then you must address common objections and concerns in your paper. Include a minimum of three references. Your topic must be different from the topic you used in paper #1. Due Tuesday, December 6 (50 points).

In-class workshops: There will be approximately 12 in-class workshops. Each workshop will be worth 5 points and your best 10 scores will count for your grade (50 points).

Exams: Two exams (50 points each) will be given on Thursday, October 13 and Tuesday, December 20 (1:00 p.m. final exam). (100 points)

Group discussion of Solzhenitsyn: Read *Solzhenitsyn, A Soul in Exile* being alert for information that will assist in answering your topic question. In addition to essay (or poem) #2 (see above), participate in a group discussion of your topic at the D2L site. You must make a minimum of **six postings**, each at least **35 words**. Two of these posting must explain an insight toward answering your topic's question. Four others must comment on or synthesize material from what others have shared. **All postings for this activity must be completed before 11:00 p.m. on Saturday, October 29** (30 points).

For the group discussion you will have one of the following topics.

Group	Topic
1	What is Solzhenitsyn's view of the role of suffering in his life?
2	Why did Solzhenitsyn reject the atheism of his youth and embrace Christianity?
3	What role did Solzhenitsyn's commitment to truth have in his life?
4	Why does Solzhenitsyn distrust both totalitarianism and democracy?
5	What is Solzhenitsyn's complaint against materialism and progress?
6	Why did the Western press distort and misrepresent Solzhenitsyn's message?
7	What troubled Solzhenitsyn about life in the United States?
8	What is Solzhenitsyn's view of the purpose of life and the meaning of death?

Some Potential Biotechnology Paper Topics

African sleeping sickness
animal models for human disease
bovine growth hormone
bioremediation
BT corn
BT cotton
BT soybean
cloning of agriculturally important animals
cloning of agriculturally important plants
cloning pets
corn resistant to toxic aluminum
cystic fibrosis
frost-inhibiting bacteria
Flavorsavor tomato
gene therapy
genetic testing
golden rice with vitamin A
herbicide resistant crops
human growth hormone
insect resistant plants
medicine in bananas
nutritionally enhanced plants
Parkinson's disease
patents and biotechnology
Roundup ready crops
severe acute respiratory syndrome (SARS)
transgenic animals as factories
transgenic plants as food
virus resistant papaya
virus resistant sweet potatoes
West Nile virus
xenotransplantation

Grading: The percentages for a course grade are given below. The instructor may adjust this grade scale at any time if a different scale is deemed more appropriate for the nature of the course during this particular semester.

Grading	
	Points
3 essays	150
Solzhenitsyn postings	30
In-class workshops (best 10)	50
Two exams	100
Total:	330

Grade	Percent	Out of 50
A	91-100	46-50
AB	88-90	44-45
B	81-87	41-43
BC	76-80	38-40
C	68-75	34-37
D	60-67	30-33
F	0-59	0-29

Disability Accommodations: If you require an academic accommodation based on a documented disability, please contact me and the Disability Services Office (465-2841) to ensure that you have equal access to education. You will be provided with the appropriate and necessary accommodations.

Class attendance: Lecture slides are available at the course D2L site. It is recommended that you print a copy of the slides for taking notes on in class. An audio recording of lectures will also be available at the D2L site. Other sources of information that would be helpful include recent general biology, genetics, cell biology, molecular biology, and microbiology texts as well as material on the internet. It will be necessary to attend class to earn points on the in-class workshops.

Plagiarism: Do not take credit for someone else's work. Be sure to give credit for material obtained from others. Clearly indicate exact quotations. Warning: it is trivial to take a phrase from a paper and search the Web to find the original source. It is easy to prove plagiarism from material on the Web or published elsewhere. Consequences: first offense results in zero points on that assignment and a letter to the Dean of Students; second offense results in failure in the course and a letter to the Dean of Students.

Tentative Class Schedule

Date			Assignment Collins	Topic
Sept	6	Tues		Science as a moral guide?
	8	Thurs		Science, an incomplete way of knowing
	13	Tues	Paper 1	Transgenic animals, Cloning
	15	Thurs		Transgenic animals, Cloning
	20	Tues		*18 Ways to make a Baby* (video)
	22	Thurs		Human stem cells and cloning
	27	Tues		Human stem cells and cloning
	29	Thurs		Molecules and Biomolecules
Oct	4	Tues	pp. 165-173	AIDS
	6	Thurs		AIDS
	11	Tues	Ch. 1, App. B	Chromosomes and genomes
	13	Thurs		**Exam #1**
	18	Tues	Ch. 4	Cancer
	20	Thurs		Cancer
	25	Tues		Green revolution
	27	Thurs		GMO crops
Nov	1	Tues	Paper 2	Discussion on Solzhenitsyn
	3	Thurs		DNA cloning and production of desired protein
	8	Tues		Insulin
	10	Thurs	Ch. 9, App. D	Drugs
	15	Tues		Drugs
	17	Thurs		Drugs
	22	Tues		*Bloodlines: Technology Hits Home* (video)
	24	Thurs		**Thanksgiving Holiday**
	29	Tues	Ch. 2, 3, 5	Genetic testing
Dec	1	Thurs	Ch. 10	Gene therapy
	6	Tues	Paper 3	*Doping for Gold* (video)
	8	Thurs		Diseases transmitted by insects
	13	Tues		Small pox, Bioweapons
	20	Tues		**Final Exam, 1:00 P.M.**