

CUNY Common Core Course Submission Form

Instructions: All courses submitted for the Common Core must be liberal arts courses. Courses may be submitted for only one area of the Common Core. All courses must be 3 credits/3 hours unless the college is seeking a waiver for a 4-credit Math or Science course (after having secured approval for sufficient 3-credit/3-hour Math and Science courses). All standard governance procedures for course approval remain in place.

College	Kingsborough Community College
Course Number	BIO 1
Course Title	The CUNY Common Core: Selected Topics in Biology
Department(s)	Biological Sciences
Discipline	Biology
Subject Area	Life and Physical Sciences
Credits	3
Contact Hours	3
Pre-requisites	none
Catalogue Description	For non-science majors and those who plan to transfer to senior colleges within CUNY. Through lecture and discussion, selected biological topics, such as evolution, ecology, genetics, and human biology will be explored. For each topic, interactive computerized lab experiences involving formulating hypotheses and the process of scientific inquiry will be conducted. In addition, current ethical issues in science will be studied. This course satisfies the CUNY Common Core Requirement for a course in Life and Physical Sciences.
Syllabus	See pages 9-11 of this document
<p>Waivers for 4-credit Math and Science Courses</p> <p>All Common Core courses must be 3 credits and 3 hours.</p> <p>Waivers for 4-credit courses will only be accepted in the required areas of Mathematical and Quantitative Reasoning and Life and Physical Sciences. Such waivers will only be approved after a sufficient number of 3-credit/3-hour math and science courses are approved for these areas.</p>	
If you would like to request a waiver please check here:	<input type="checkbox"/> Waiver requested
If waiver requested: Please provide a brief explanation for why the course will be 4 credits.	
If waiver requested: Please indicate whether this course will satisfy a major requirement, and if so, which major requirement(s) the course will fulfill.	

Indicate the status of this course being nominated:

current course revision of current course a new course being proposed

CUNY COMMON CORE Location

Please check below the area of the Common Core for which the course is being submitted. (Select only one.)

Required

- English Composition
- Mathematical and Quantitative Reasoning
- Life and Physical Sciences

Flexible

- World Cultures and Global Issues
- US Experience in its Diversity
- Creative Expression
- Individual and Society
- Scientific World

Learning Outcomes

In the left column explain the assignments and course attributes that will address the learning outcomes in the right column.

I. Required Core (12 credits)

A. English Composition: Six credits

A course in this area must meet all the learning outcomes in the right column. A student will:

- Read and listen critically and analytically, including identifying an argument's major assumptions and assertions and evaluating its supporting evidence.
- Write clearly and coherently in varied, academic formats (such as formal essays, research papers, and reports) using standard English and appropriate technology to critique and improve one's own and others' texts.
- Demonstrate research skills using appropriate technology, including gathering, evaluating, and synthesizing primary and secondary sources.
- Support a thesis with well-reasoned arguments, and communicate persuasively across a variety of contexts, purposes, audiences, and media.
- Formulate original ideas and relate them to the ideas of others by employing the conventions of ethical attribution and citation.

B. Mathematical and Quantitative Reasoning: Three credits

A course in this area must meet all the learning outcomes in the right column. A student will:

- Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
- Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
- Represent quantitative problems expressed in natural language in a suitable mathematical format.
- Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
- Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
- Apply mathematical methods to problems in other fields of study.

C. Life and Physical Sciences: Three credits	
A course in this area <u>must meet all the learning outcomes</u> in the right column. A student will:	
The basic biological theories of evolution and the evidence for each will be explored. Students will be required to visit the "Hall of Man" of The American Museum of Natural History and submit a written report based on the evolutionary displays they study at the museum.	<ul style="list-style-type: none"> Identify and apply the fundamental concepts and methods of a life or physical science.
Specific labs will focus on observations and drawing conclusions. In addition, students will be determining their effect on the environment by calculating their carbon footprints and analyzing population data.	<ul style="list-style-type: none"> Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.
After conducting independent scientific inquiry exercises, students will work in groups in lecture to consider the results obtained.	<ul style="list-style-type: none"> Use the tools of a scientific discipline to carry out collaborative laboratory investigations.
Students will be conducting "Smart Science" Lab Activities. For each computer activity, students develop a hypothesis, collect experimental data, develop a data graph and submit an online lab report.	<ul style="list-style-type: none"> Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.
In the last four weeks of the course students will be discussing current biological issues and considers ethical concerns.	<ul style="list-style-type: none"> Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.
II. Flexible Core (18 credits)	
Six three-credit liberal arts and sciences courses, with at least one course from each of the following five areas and no more than two courses in any discipline or interdisciplinary field.	
A. World Cultures and Global Issues	
A Flexible Core course <u>must meet the three learning outcomes</u> in the right column.	
	<ul style="list-style-type: none"> Gather, interpret, and assess information from a variety of sources and points of view.
	<ul style="list-style-type: none"> Evaluate evidence and arguments critically or analytically.
	<ul style="list-style-type: none"> Produce well-reasoned written or oral arguments using evidence to support conclusions.
A course in this area (II.A) <u>must meet at least three of the additional learning outcomes</u> in the right column. A student will:	
	<ul style="list-style-type: none"> Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring world cultures or global issues, including, but not limited to, anthropology, communications, cultural studies, economics, ethnic studies, foreign languages (building upon previous language acquisition), geography, history, political science, sociology, and world literature.
	<ul style="list-style-type: none"> Analyze culture, globalization, or global cultural diversity, and describe an event or process from more than one point of view.
	<ul style="list-style-type: none"> Analyze the historical development of one or more non-U.S. societies.
	<ul style="list-style-type: none"> Analyze the significance of one or more major movements that have shaped the world's societies.
	<ul style="list-style-type: none"> Analyze and discuss the role that race, ethnicity, class, gender, language, sexual orientation, belief, or other forms of social differentiation play in world cultures or societies.
	<ul style="list-style-type: none"> Speak, read, and write a language other than English, and use that language to respond to cultures other than one's own.

B. U.S. Experience in its Diversity

A Flexible Core course must meet the three learning outcomes in the right column.

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| | <ul style="list-style-type: none">• Gather, interpret, and assess information from a variety of sources and points of view. |
| | <ul style="list-style-type: none">• Evaluate evidence and arguments critically or analytically. |
| | <ul style="list-style-type: none">• Produce well-reasoned written or oral arguments using evidence to support conclusions. |

A course in this area (II.B) must meet at least three of the additional learning outcomes in the right column. A student will:

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| | <ul style="list-style-type: none">• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the U.S. experience in its diversity, including, but not limited to, anthropology, communications, cultural studies, economics, history, political science, psychology, public affairs, sociology, and U.S. literature. |
| | <ul style="list-style-type: none">• Analyze and explain one or more major themes of U.S. history from more than one informed perspective. |
| | <ul style="list-style-type: none">• Evaluate how indigenous populations, slavery, or immigration have shaped the development of the United States. |
| | <ul style="list-style-type: none">• Explain and evaluate the role of the United States in international relations. |
| | <ul style="list-style-type: none">• Identify and differentiate among the legislative, judicial, and executive branches of government and analyze their influence on the development of U.S. democracy. |
| | <ul style="list-style-type: none">• Analyze and discuss common institutions or patterns of life in contemporary U.S. society and how they influence, or are influenced by, race, ethnicity, class, gender, sexual orientation, belief, or other forms of social differentiation. |

C. Creative Expression

A Flexible Core course must meet the three learning outcomes in the right column.

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| | <ul style="list-style-type: none">• Gather, interpret, and assess information from a variety of sources and points of view. |
| | <ul style="list-style-type: none">• Evaluate evidence and arguments critically or analytically. |
| | <ul style="list-style-type: none">• Produce well-reasoned written or oral arguments using evidence to support conclusions. |

A course in this area (II.C) must meet at least three of the additional learning outcomes in the right column. A student will:

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| | <ul style="list-style-type: none">• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring creative expression, including, but not limited to, arts, communications, creative writing, media arts, music, and theater. |
| | <ul style="list-style-type: none">• Analyze how arts from diverse cultures of the past serve as a foundation for those of the present, and describe the significance of works of art in the societies that created them. |
| | <ul style="list-style-type: none">• Articulate how meaning is created in the arts or communications and how experience is interpreted and conveyed. |
| | <ul style="list-style-type: none">• Demonstrate knowledge of the skills involved in the creative process. |
| | <ul style="list-style-type: none">• Use appropriate technologies to conduct research and to communicate. |

D. Individual and Society

A Flexible Core course must meet the three learning outcomes in the right column.

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| | <ul style="list-style-type: none">● Gather, interpret, and assess information from a variety of sources and points of view. |
| | <ul style="list-style-type: none">● Evaluate evidence and arguments critically or analytically. |
| | <ul style="list-style-type: none">● Produce well-reasoned written or oral arguments using evidence to support conclusions. |

A course in this area (II.D) must meet at least three of the additional learning outcomes in the right column. A student will:

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| | <ul style="list-style-type: none">● Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the relationship between the individual and society, including, but not limited to, anthropology, communications, cultural studies, history, journalism, philosophy, political science, psychology, public affairs, religion, and sociology. |
| | <ul style="list-style-type: none">● Examine how an individual's place in society affects experiences, values, or choices. |
| | <ul style="list-style-type: none">● Articulate and assess ethical views and their underlying premises. |
| | <ul style="list-style-type: none">● Articulate ethical uses of data and other information resources to respond to problems and questions. |
| | <ul style="list-style-type: none">● Identify and engage with local, national, or global trends or ideologies, and analyze their impact on individual or collective decision-making. |

E. Scientific World

A Flexible Core course must meet the three learning outcomes in the right column.

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| | <ul style="list-style-type: none">● Gather, interpret, and assess information from a variety of sources and points of view. |
| | <ul style="list-style-type: none">● Evaluate evidence and arguments critically or analytically. |
| | <ul style="list-style-type: none">● Produce well-reasoned written or oral arguments using evidence to support conclusions. |

A course in this area (II.E) must meet at least three of the additional learning outcomes in the right column. A student will:

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| | <ul style="list-style-type: none">● Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the scientific world, including, but not limited to: computer science, history of science, life and physical sciences, linguistics, logic, mathematics, psychology, statistics, and technology-related studies. |
| | <ul style="list-style-type: none">● Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions. |
| | <ul style="list-style-type: none">● Articulate and evaluate the empirical evidence supporting a scientific or formal theory. |
| | <ul style="list-style-type: none">● Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world, such as issues of personal privacy, security, or ethical responsibilities. |
| | <ul style="list-style-type: none">● Understand the scientific principles underlying matters of policy or public concern in which science plays a role. |

FORMAT FOR PRESENTATION OF CURRICULUM PROPOSALS

1. DEPARTMENT, COURSE NUMBER AND TITLE: **BIOLOGICAL SCIENCES, BIO 1, THE CUNY COMMON CORE: SELECTED TOPICS IN BIOLOGY**
2. DOES THIS COURSE MEET DISTRIBUTION REQUIREMENTS FOR GROUPS I-V? IF SO, WHICH GROUP? **THIS COURSE IS PART OF THE CUNY PATHWAYS REQUIRED CORE**
3. TRANSFERABILITY OF THIS COURSE. DESCRIBE HOW THIS COURSE TRANSFERS (required for A.S. degree course). If A.A.S. degree course and does not transfer, justify role of course, i.e., describe other learning objectives met: **THE COURSE WILL TRANSFER WITHIN CUNY, BUT WILL NOT TRANSFER AS A LAB SCIENCE OUTSIDE OF CUNY.**

BULLETIN DESCRIPTION OF COURSE: FOR NON-SCIENCE MAJORS AND THOSE WHO PLAN TO TRANSFER TO SENIOR COLLEGES WITHIN CUNY. THROUGH LECTURE AND DISCUSSION, SELECTED BIOLOGICAL TOPICS, SUCH AS EVOLUTION, ECOLOGY, GENETICS, AND HUMAN BIOLOGY WILL BE EXPLORED. FOR EACH TOPIC, INTERACTIVE COMPUTERIZED LAB EXPERIENCES INVOLVING FORMULATING HYPOTHESES AND THE PROCESS OF SCIENTIFIC INQUIRY WILL BE CONDUCTED. IN ADDITION, CURRENT ETHICAL ISSUES IN SCIENCE WILL BE STUDIED. THIS COURSE SATISFIES THE CUNY COMMON CORE REQUIREMENT FOR A COURSE IN LIFE AND PHYSICAL SCIENCES.

4. NUMBER OF WEEKLY CLASS HOURS (please indicate the number of hours per week spent in a lab, hours spent on site doing fieldwork, hours of supervision and hours in classroom-- if applicable): **1 HOUR LECTURE, 2 HOURS LAB/SIMULATIONS,**
5. NUMBER OF CREDITS: **3**
6. COURSE PREREQUISITES AND COREQUISITES
 - A. PREREQUISITES: **NONE**
 - B. COREQUISITES: **NONE**
 - C. PRE OR COREQ: **NONE**
7. BRIEF RATIONALE TO JUSTIFY PROPOSED COURSE TO INCLUDE:
 - A. ENROLLMENT SUMMARIES, IF PREVIOUSLY OFFERED AS AN 82: **NOT PREVIOUSLY OFFERED**
 - B. PROJECTED ENROLLMENT: **24 STUDENTS PER SECTION**
 - C. CLASS LIMITS: **24 STUDENTS PER SECTION**
 - D. FREQUENCY COURSE IS LIKELY TO BE OFFERED: **EVERY SEMESTER AND MODULE**
 - E. ROLE OF COURSE IN DEPARTMENT'S CURRICULUM AND COLLEGE'S MISSION: **FULFILLS REQUIREMENT FOR A 3 CREDIT COURSE FOR THE CUNY PATHWAYS REQUIRED CORE**

8. LIST OF COURSES, IF ANY, TO BE WITHDRAWN WHEN COURSE(S) IS (ARE) ADOPTED: NONE
9. IF COURSE IS AN INTERNSHIP OR INDEPENDENT STUDY OR THE LIKE, PROVIDE AN EXPLANATION AS TO HOW THE STUDENTS WILL EARN THE CREDITS AWARDED. THE CREDITS AWARDED SHOULD BE CONSISTENT WITH STUDENTS' EFFORTS REQUIRED IN A TRADITIONAL CLASSROOM SETTING: COURSE IS NOT PART OF AN INTERNSHIP OR INDEPENDENT STUDY
10. PROPOSED TEXT BOOK(S) AND/OR OTHER REQUIRED INSTRUCTIONAL MATERIAL(S):
 TEXT: BIOLOGY FOR A CHANGING WORLD BY M. SHUSTER, J. VIGNA, G. SINHA, AND M. TONTONAZ. W H FREEMAN & CO (2011) ISBN: 0716773244
 LAB: SMART SCIENCE LAB UNITS, SMART SCIENCE EDUCATION
[HTTP://WWW.SMARTSCIENCE.NET/SMARTSCIENCE/SMARTSCIENCE.HTML](http://www.smartscience.net/smartscience/smartscience.html)
12. REQUIRED COURSE FOR MAJORS AND/OR AREA OF CONCENTRATION? (If course is required, please submit a separate transmittal with a degree requirement sheet noting the proposed revisions, including where course fits into degree requirements, and what course(s) will be removed as a requirement for the degree. NYSED guidelines of 45 crs. of Liberal Arts coursework for an A.A. degree, 30 crs. for an A.S. degree and 20 crs. of Liberal Arts for an A.A.S. degree must be adhered to for all 60 cr. programs).
COURSE IS PART OF THE LIFE AND PHYSICAL SCIENCES REQUIRED COMMON CORE.
13. IF OPEN ONLY TO SELECTED STUDENTS (specify): OPEN TO ALL STUDENTS
14. EXPLAIN WHAT STUDENTS WILL KNOW AND BE ABLE TO DO UPON COMPLETION OF COURSE:
- IDENTIFY AND APPLY THE FUNDAMENTAL CONCEPTS AND METHODS OF BIOLOGY.
 - APPLY THE SCIENTIFIC METHOD TO EXPLORE NATURAL PHENOMENA, INCLUDING HYPOTHESIS DEVELOPMENT, OBSERVATION, EXPERIMENTATION, MEASUREMENT, DATA ANALYSIS, AND DATA PRESENTATION.
 - USE THE TOOLS OF A SCIENTIFIC DISCIPLINE TO CARRY OUT COLLABORATIVE LABORATORY INVESTIGATIONS.
 - GATHER, ANALYZE, AND INTERPRET DATA AND PRESENT IT IN AN EFFECTIVE WRITTEN LABORATORY OR FIELDWORK REPORT.
 - IDENTIFY AND APPLY RESEARCH ETHICS AND UNBIASED ASSESSMENT IN GATHERING AND REPORTING SCIENTIFIC DATA.
15. METHODS OF TEACHING --eg., LECTURES, LABORATORIES, AND OTHER ASSIGNMENTS FOR STUDENTS, INCLUDING ANY OF THE FOLLOWING: DEMONSTRATIONS, GROUP WORK, WEBSITE OR E-MAIL INTERACTIONS AND/OR ASSIGNMENTS, PRACTICE IN APPLICATION OF SKILLS: THIS COURSE WILL INVOLVE LECTURE, DISCUSSION, DATA COLLECTION THROUGH LABORATORY SIMULATIONS, GROUP WORK, WEBSITE ASSIGNMENTS AND THE SUBMISSION OF WRITTEN REPORTS.
16. ASSIGNMENTS TO STUDENTS:
- | | |
|--------------------------------|------------|
| <u>EXAMS/QUIZZES</u> | <u>30%</u> |
| <u>LAB REPORTS/ASSIGNMENTS</u> | <u>30%</u> |
| <u>CLASS WORK*</u> | <u>10%</u> |

FINAL PRESENTATION 10%

FINAL EXAM 20%

***CLASS WORK INCLUDES COMPLETING ONLINE ASSIGNMENTS SO THAT STUDENTS COME TO CLASS PREPARED FOR THE DAY'S DISCUSSION**

- 17. DESCRIBE METHOD OF EVALUATING LEARNING SPECIFIED IN #15: EVALUATION WILL INVOLVE EXAMS, QUIZZES, WRITTEN REPORTS AND IN CLASS PRESENTATIONS.**
- 18. TOPICAL COURSE OUTLINE (WHICH SHOULD BE AS SPECIFIC AS POSSIBLE REGARDING TOPICS COVERED, LEARNING ACTIVITIES AND ASSIGNMENTS): SEE PAGE 3-4 OF THIS DOCUMENT**
- 19. SELECTED BIBLIOGRAPHY AND SOURCE MATERIALS: SEE PAGE 4 OF THIS DOCUMENT**

Please contact your Department Chairperson or Associate Dean Loretta DiLorenzo at the Office of Academic Affairs x5328, if you require any assistance completing a course proposal according to this format. Copies of this format are available electronically.

BIO 1 Course Outline

WEEK	LECTURE	SCIENTIFIC INQUIRY/LAB EXPERIENCE
1	Introduction to biology Characteristics of life Life's diversity (classification: kingdoms)	Is yeast alive? (home activity) Smart Science: Plants and Water
2	How is biology studied- the scientific method	Making observations (home activity)-oranges, apples, bananas
3	Evolution <ul style="list-style-type: none"> • Principle: Darwin's observations and deductions • Evidence: <ul style="list-style-type: none"> ○ Fossil record ○ Comparative anatomy & physiology (form/function) 	http://www.eskeletons.org/comparative.html Smart Science: Natural Selection
4	Evolution <ul style="list-style-type: none"> • Adaptations and extinction • Human Evolution - Did humans evolve from monkeys? 	Students will go to The American Museum of Natural History: Hall of Man
5	Ecology <ul style="list-style-type: none"> • Principles and goals • Organization: population, community, ecosystems, biosphere and biosphere • Populations: importance of growth and size. Impact of human population on the environment • Community: interaction and symbioses 	Population examination http://www.populationinstitute.org/?gclid=Cjt4vXKlq4CFUFN4Aod8CGNKQ Analysis of population data http://www.globalchange.umich.edu/globalchange2/current/lectures/human_pop/human_pop.html Smart Science: Biomes Observations on campus
6	Ecology <ul style="list-style-type: none"> • Ecosystem organization, trophic levels • Changes in ecosystems over time 	Smart Science: Food Webs Observations on campus
7	Human impact on the Biosphere <ul style="list-style-type: none"> • Global warming • Pollution • Population explosion • Feeding the population • Fossil fuels • Alternative energy sources 	Calculate carbon footprint Smart Science: Animal Behavior Smart Science: Seed germination with Pollutants
8	Introduction to ethics and ethics in science	Case study: http://www.bioethics.iastate.edu/classroom/case_studies.html

WEEK	LECTURE	SCIENTIFIC INQUIRY/LAB EXPERIENCE
9	<p>Current topics in biology: Food and Nutrition</p> <ul style="list-style-type: none"> • Labels: RDA and nutritional information • Organic foods: pros and cons • Genetically modified foods • Ethical concerns 	Analysis of food labels
10	<p>Current topics in biology: The Human Body and Wellness</p> <ul style="list-style-type: none"> • Obesity • Heart Disease • Why are certain populations at greater risk? Is there an ethical issue? 	<p>Assessing your health risk: BMI calculation</p> <p>http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/risk.htm</p> <p>Obesity http://www.always-health.com/risk_calculator/obesity.asp</p> <p>American Heart Association: "Calculate your risk for high blood pressure related risks"</p> <p>http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/WhyBloodPressureMatters/Assess-Your-High-Blood-Pressure-Related-Risks_UCM_301829_Article.jsp</p>
11	<p>Current topics in biology: Genetics</p> <ul style="list-style-type: none"> • Genetic testing • Stem cells • Gene Therapy • Human genome project • Ethical Issues 	<p>http://www.stemcellresearch.org/</p> <p>http://ghr.nlm.nih.gov/handbook/therapy/genetherapy</p>
12	<p>Student presentations on a biological topic of interest.</p> <p>The presentation needs to include:</p> <ul style="list-style-type: none"> • The techniques used to study the topic • How the data are gathered and analyzed • Ethical concerns 	→

Resources

Why is evolution controversial anyway?

<http://www.pbs.org/wgbh/evolution/educators/teachstuds/unit7.html>

What is the nature of science?

http://www.pbs.org/cgi-registry/2wgbh/evolution/print_input.cgi

Evolution

http://www.bbc.co.uk/sn/prehistoric_life/human/human_evolution/food_for_thought1.shtml

http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_50

Extinction

<http://www.open.edu/openlearn/nature-environment/natural-history/museum-the-dead>

<http://www.eskeletons.org/>

<http://www.eskeletons.org/comparative.html>

Carbon Footprint

<http://bie.berkeley.edu/node/1849>

Pollution and Environmental Health Concerns

<http://toxtown.nlm.nih.gov/>

<http://www.who.int/indoorair/en/index.html>

<http://www.populationinstitute.org/?gclid=CJjt4vXKlq4CFUFN4Aod8CGNKQ>

http://www.globalchange.umich.edu/globalchange2/current/lectures/human_pop/human_pop.html

Bioethics

http://www.bioethics.iastate.edu/classroom/case_studies.html

<http://www.sosq.vcu.edu/videos.aspx>

Genetics

<http://www.stemcellresearch.org/>

<http://ghr.nlm.nih.gov/handbook/therapy/genetherapy>