

NEW COURSE FORM

1. General Information.				
a.	Submitted by the College of: <u>Agriculture</u>	Today's Date: <u>Dec. 28, 2011</u>		
b.	Department/Division: <u>Plant & Soil Sciences</u>			
c.	Contact person name: <u>Joe Chappell</u>	Email: <u>chappell@uky.edu</u>	Phone: <u>218-0775</u>	
d.	Requested Effective Date: <input type="checkbox"/> Semester following approval	OR	<input checked="" type="checkbox"/> Specific Term/Year ¹ : <u>F12</u>	
2. Designation and Description of Proposed Course.				
a.	Prefix and Number: <u>ABT 120</u>			
b.	Full Title: <u>Genetics and Society</u>			
c.	Transcript Title (if full title is more than 40 characters): _____			
d.	To be Cross-Listed ² with (Prefix and Number): _____			
e.	Courses must be described by <u>at least one</u> of the meeting patterns below. Include number of actual contact hours ³ for each meeting pattern type.			
	<u>2hr/wk</u> Lecture	<u>1hr/wk</u> Laboratory ¹	_____ Recitation	<u>1hr/wk</u> Discussion
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research
	_____ Seminar	_____ Studio	_____ Other – Please explain: _____	
f.	Identify a grading system:	<input checked="" type="checkbox"/> Letter (A, B, C, etc.)	<input type="checkbox"/> Pass/Fail	
g.	Number of credits: <u>3</u>			
h.	Is this course repeatable for additional credit?		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
	If YES:	Maximum number of credit hours: _____		
	If YES:	Will this course allow multiple registrations during the same semester?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
i.	Course Description for Bulletin:	<p><u>This course is designed for science and non-science majors, giving students an understanding of how genetics influences and impacts our social fabric on a daily basis, and equipping students with a sufficient understanding to participate in the policy debates that are impacting our lives. The course will introduce students to the basic concepts of genetics and to the modern methodologies of molecular genetics. The course will also educate students in the process of scientific discovery and empower students with the knowledge and critical thinking skills necessary to evaluate the present and future impact of genetics on society. While the course is intended for first semester freshmen, students at all class standings are welcome to enroll.</u></p>		
j.	Prerequisites, if any: <u>none</u>			
k.	Will this course also be offered through Distance Learning?		YES ⁴ <input type="checkbox"/>	NO <input checked="" type="checkbox"/>

¹ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

² The chair of the cross-listing department must sign off on the Signature Routing Log.

³ In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from SR 5.2.1)

⁴ You must *also* submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

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I.	Supplementary teaching component, if any:	<input type="checkbox"/> Community-Based Experience	<input type="checkbox"/> Service Learning	<input type="checkbox"/> Both
3.	Will this course be taught off campus?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
4.	Frequency of Course Offering.			
a.	Course will be offered (check all that apply):	<input checked="" type="checkbox"/> Fall	<input checked="" type="checkbox"/> Spring	<input type="checkbox"/> Summer
b.	Will the course be offered every year?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If NO, explain:	<u>At some point, we are hoping that the availability of other courses will permit this course to be offered only once a year. However, until that happens, we are anticipating offering it every semester.</u>		
5.	Are facilities and personnel necessary for the proposed new course available?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If NO, explain:	<u>I would hope to secure the support for a TA to assist with the laboratory/discussion sections of the course.</u>		
6.	What enrollment (per section per semester) may reasonably be expected?	<u>100 total</u>		
7.	Anticipated Student Demand.			
a.	Will this course serve students primarily within the degree program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
b.	Will it be of interest to a significant number of students outside the degree pgm?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If YES, explain:	<u>This course is designed for science and non-science majors, giving students an understanding of how genetics influences and impacts our social fabric on a daily basis, and equipping students with a sufficient understanding to participate in the policy debates that are impacting our lives. For instance, what are the benefits and dangers of genetically modified foods? What are the consequences of knowing our DNA fingerprints? Can this be used to predict our health prospects? If so, how should this information be used? The course will be of interest to those students pursuing degrees in life science majors as well as those wanting additional science background for degrees like psychology and education, as well as those students seeking career paths in law and public policy.</u>		
8.	Check the category most applicable to this course:			
	<input type="checkbox"/> Traditional – Offered in Corresponding Departments at Universities Elsewhere			
	<input type="checkbox"/> Relatively New – Now Being Widely Established			
	<input checked="" type="checkbox"/> Not Yet Found in Many (or Any) Other Universities			
9.	Course Relationship to Program(s).			
a.	Is this course part of a proposed new program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
	If YES, name the proposed new program:	_____		
b.	Will this course be a new requirement ⁵ for ANY program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
	If YES ⁵ , list affected programs:	<u>The Ag. Biotech. Coordinating faculty has asked if this course might be offered as a major requirement for this program at sometime in the future. I'm fine with this request, but also asked that the Program faculty make allowances for students who might already have the background offered by this course and could benefit more from taking another course to satisfy the new Gen. Ed. Intellectual Inquiry Science</u>		

⁵ In order to change a program, a program change form must also be submitted.

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		<p>requirement. It is possible that this course might become of greater utility to the <u>Ag. Biotech. majors by establishing the conceptual basis for experimental sciences along with a more introductory course for learning basic lab skills. Nonetheless, I'm committed to having this course serve a much broader range of students because the issues we will address have far reaching implications for societies and social policies, now and in the future. The course is designed to enfranchise Philosophy and Fine Arts majors as much as those students more inclined to the natural science.</u></p>
10. Information to be Placed on Syllabus.		
a.	Is the course 400G or 500?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
<p>If YES, the <i>differentiation for undergraduate and graduate students must be included</i> in the information required in 10.b. You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See <i>SR 3.1.4.</i>)</p>		
b.	<input type="checkbox"/>	The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from 10.a above) are attached.

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Signature Routing Log

General Information:

Course Prefix and Number: ABT 120

Proposal Contact Person Name: Joe Chappell Phone: 218-
0775 Email: chappell@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Ag. Biotech. Coordinating faculty	1/5/2012	Dan Howe / 218-1113 / daniel.howe@uky.edu	
College of Ag/Undergrad. Curriculum Committee	1/20/2012	Larry Grabau / 257-3469 / larry.grabau@uky.edu	
IGEOC	2/14/2012	Bill Rayens / 257-7061 / rayens@uky.edu	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁶
Undergraduate Council	2/14/2012	Sharon Gill	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

⁶ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

General Education Course Approval Cover Sheet

Date of Submission 12/28/2011

1. Check which area(s) this course applies to

- | | | | |
|----------------------------------|-------------------------------------|--|--------------------------|
| Inquiry – Arts & Creativity | <input type="checkbox"/> | Composition & Communications - II | <input type="checkbox"/> |
| Inquiry – Humanities | <input type="checkbox"/> | Quantitative Foundations | <input type="checkbox"/> |
| Inquiry – Nat/Math/Phys Sci | <input checked="" type="checkbox"/> | Statistical Inferential Reasoning | <input type="checkbox"/> |
| Inquiry – Social Sciences | <input type="checkbox"/> | U.S. Citizenship, Community, Diversity | <input type="checkbox"/> |
| Composition & Communications - I | <input type="checkbox"/> | Global Dynamics | <input type="checkbox"/> |

2. Provide Course and Department Information.

Department: Plant and Soil Sciences

Course Prefix and Number: ABT 120 Credit hours: 3

Course Title: Genetics and Society

Expected # of Students per Calendar Yr: 100 Course Required for Majors in your Program (check one)? Yes No

Prerequisite(s) for Course? none

This request is for (check one) A New Course An Existing Course

Departmental Contact Information

Name: Joe Chappell Email: chappell@uky.edu

Office Address: 301B Plant Science Building Phone: 218-0775

3. In addition to this form, the following must be submitted for consideration:

- A syllabus that conforms to the Senate Syllabi Guidelines, including a mapping of the stated learning outcomes to those presented on the corresponding Course Template.
- A completed Course Review Form. See the Gen Ed website <http://www.uky.edu/gened/forms.html> for these forms. Proposals prepared prior to September 15th, 2010 are allowed to use a narrative instead of the Course Review Form.
- If applicable, a major course change form for revision of an existing course, or a new course form for a new course.

4. Signatures

Department Chair: Daniel.Howe@uky.edu 257-4757 Date: 1/5/2012

Assoc Dean: Larry.Grabau@uky.edu 257-3469 Date: 1/20/2012

All proposals are to be submitted from the College Dean's Office
Submission is by way of the General Education website <http://www.uky.edu/gened>

**Course Review Form
Inquiry in the Natural/Mathematical/Physical Sciences**

Reviewer Recommendation

Accept Revisions Needed

Course: ABT 120 Genetics and Society

Using the course syllabus as a reference, identify when and how the following learning outcomes are addressed in the course. Since learning outcomes will likely be addressed multiple ways within the same syllabus, please identify a representative example (or examples) for each outcome.

Course activities that enable students to demonstrate an understanding of methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.

Example(s) from syllabus:

Lectures 1 and 2 - What is Science? and Science and the Media

Brief Description:

Lecture 1 differentiates between knowledge and beliefs, details the scientific method and how scientific inquires lead to new paradigms. Examples to be discussed are the Germ theory of disease and the discovery of that Prions - proteins, not nucleic acids, that be infectious agents (1997 Nobel Prize). Lecture 2 emphasizes the means for scientific publication - peer review, independent experimental verification, and reliance on data. Contrast with popular press articles that emphasize brevity and potential social impacts using the early coverage of the AIDS epidemic to illustrate these points.

Course activities that enable students to demonstrate an understanding of the fundamental principles in a branch of science.

Example(s) from syllabus:

First laboratory experiment (3-4 weeks): The dominant concept throughout the course will be defining what a gene is and how it contributes to a functional attribute in any organism. The concept will also be discussed extensively in Lectures 3 & 4, What is a gene? and how are genes characterized?

Brief Description:

Teams of 2 students will set up genetic crosses between wild type and mutant fruit flies and examine the segregation of the mutant phenotype in the F2 population. Students will learn what is meant by the terms breeding, first and second familial generation, recessive versus dominant traits, autosomal versus sex-linked traits, genotype versus phenotype, and genetic segregation. The students will also learn how to perform a the Chi-square statistical test to evaluate the significance of their data.

Course activities that enable students to demonstrate the application of fundamental principles to interpret and make predictions in that branch of science.

Example(s) from syllabus:

I will use numerous examples throughout the lecture series to illustrate how the concept of genes has changed over time, largely as a consequence of observing experimental data, making predictions from that data, then performing experiments to confirm an hypothesis. This will be reinforced by the experiments the students will be performing themselves. For example, in the first experiment, the students will be examining the segregation of a mutant phenotype in an F2 population. While they will be responsible for setting up the experiment, monitoring the flies over time and recording data, they will be required to make an hypothesis about the starting genotype and phenotype of the starting flies. They will test their hypothesis by performing a Chi-square test of their F2 population data. For example, the students might predict that the mutant phenotype is a recessive trait, and when the mutant fly is mated

with a wild type fly being homozygous dominant at this locus, the F2 population should segregate in a 3:1 ratio of wild type to mutant phenotypes.

Brief Description:
(see above)

Course activities that enable students to demonstrate their ability to discuss how at least one scientific discovery changed the way scientists understand the world.

Example(s) from syllabus:

The students will have a number of writing assignments requiring them to obtain recent scientific articles that address how concepts discussed in the required textbook (Genome) or serving as debate topics have developed over the last few years.

Brief Description:

Students will have to choose a topic from a list for each chapter of the textbook, find 2 relevant scientific publications, and prepare a 500 word report providing an update on the topic area. (Please see the attached Guidelines for Genome Update Written Report for more specifics)

Course activities that enable students to demonstrate their ability to discuss the interaction of science with society.

Example(s) from syllabus:

All students will be required to participate in a formal debate team discussion dealing with issues and topics of how genetics impacts society. Example topics include "Cloning of human embryonic stem cells should be banned" and "The US should prohibit commercialization of genetically engineered plants".

Brief Description:

Students will be assigned to debate teams of 4 to 6 students and assigned a specific topic. The teams will be required to meet and coordinate their efforts. Each team member will be required to independently find and analyze 2 references that the group will use while debating, and each member will be required to submit a 400 word review of the reference articles, prior to the debate. The debates will consist of two monologues followed by questioning from an opponent (cross-examination), followed by rebuttals and closing comments. All team members will be required to participate in the opening comments, rebuttals or closing statements. (Please see the attached guideline for the debates for additional details)

A hands-on student project is required. This project enables students to demonstrate their ability to conduct a scientific project using scientific methods that include design, data collection, analysis, summary of the results, conclusions, alternative approaches, and future studies. Describe the required student product (paper/ laboratory report) based on the hands-on project.

The students will be required to perform 2 experiments, each taking approximately 4 weeks to complete. Lab reports will be required for each experiment.

In the first experiment, the students will be examining the segregation of a mutant phenotype in an F2 population of fruit flies. While they will be responsible for setting up the experiment, monitoring the flies over time and recording data, they will also be required to make an hypothesis about the starting genotype and phenotype of the starting flies. They will test their hypothesis by performing a Chi-square test of their F2 population data.

In the second experiment, the students will be determining their own genotype at a particularly polymorphic locus, the so-called alu insertion site. The experiment will consist of each student working in teams of 2 students isolating their own DNA from oral washes, PCR amplifying their alu alleles, examining the size of their amplicon by gel electrophoresis, and determining their genotype at this locus. Using the class data, each student will calculate the gene and allelic frequency of each allele in comparison to a theoretical calculation. The students will also use a suite of internet websites to determine on which chromosome the alu insert resides and sequence differences between the allelic variants.

Course activities that demonstrate the integration of information literacy into the course.

Example(s) from syllabus:

There are several activities requiring the students to access information from a variety of sources and to demonstrate how that information is relevant and extends beyond what is provided in the required textbook.

Brief Description:

Each student has to prepare an update report on one of the topics listed from the textbook, requiring them to identify reputable information sources within the last 5 years. Each student is also required to prepare a written report for two information resources they have used in preparing for their debate.

Reviewer's Comments

ABT 120 Genetics and Society Fall 2012

Lectures: Monday/Wednesday: 4:00 – 4:50 PM

Discussion/lab: Thurs. 5:00-6:50 PM, Friday: 9:00-10:50 AM, 11:00-12:50 PM

Instructor: Dr. Joe Chappell, 301B Plant Sci Bldg, chappell@uky.edu, 218-0775

Office hours: Weds 12:00-1:00 PM and 4:00-5:00 PM

TAs: TBA (1 in attendance in every laboratory/recitation session – the same TA may service more than one section)

TA Office hours: TBA

Course Description: This course is designed for science and non-science majors, giving students an understanding of how genetics influences and impacts our social fabric on a daily basis, and equips students with a sufficient understanding to participate in the policy debates that are impacting our lives. The course will introduce students to the basic concepts of genetics and introduce them to the modern methodologies of molecular genetics. The course will also educate students in the process of scientific discovery and empower students with the knowledge and critical thinking skills necessary to evaluate the present and future impact of genetics on society. While the course is intended for first semester freshmen, students at all class standings are welcome to enroll.

Prerequisites: none

Student Learning Outcomes:

1. Students will master the basic concepts of genetics, and gain practical experience in the methodologies used in establishing basic scientific principles.
2. Students will realize the process of scientific discovery by direct experience in laboratory exercises.
3. Students will acquire the knowledge and critical thinking skills necessary to evaluate the present and future impact of genetics on society as demonstrated by participation in debates.

Course Format:

2 hours lecture, 2 hours of discussion-laboratory exercise per week

Reading material:

Required - Genome – the Autobiography of a Species in 23 Chapters by Matt Ridley, Harper Perennial Press, 2000

Electronic access to assigned articles on the course web page.

Optional: Essential Genetics, Peter J. Russell, on reserve in the Young Library.

Optional: The Human Genome, 2nd edition, Richards & Hawley, on reserve in the Young Library.

Grading:

Critical thinking, organization, legibility, spelling and grammar will be taken into consideration in grading exams and assignments.

25% Midterm (50 points):

The midterm exam will cover basic genetics, the process of scientific discovery, and plant genetic engineering. The exam will be CLOSED book and consist of multiple choice and short answer questions.

10% Debate (20 points):

Students will debate one of 10 topics. The instructor will assign debate teams consisting of 4-6 members. Please fill out a debate topic selection form on Wednesday, Aug xx, xxxx. Please indicate the following: date/subject and affirmative or negative. We will do our best to accommodate your preferences, but cannot guarantee it. The timing of the oral presentation will be strictly limited according to the rules described in the debate handout. You will be graded on clarity of your presentation, the persuasiveness of your arguments, and your ability to identify and convey relevant scientific knowledge to the class.

15% Lab Reports (30 points):

All Students will be required to perform two experiments: 1. A segregation analysis of traits in an F2 population of fruit flies; and 2. Develop a molecular fingerprint of your DNA. Lab reports for each experiment will be graded on the quality of the report, the technical accuracy of the results, and on the inferences drawn from the results.

10% Written reviews (20 points):

Each team member will be required to contribute two unique literature references to the debate effort. Students will prepare a brief review of each article, two reviews in total. Grading will be based on the quality of writing, including both grammar and presentation style, and also on the veracity of the selected references. Consult the "review guidelines" handout for additional details regarding the format and grading of reviews.

10% Genome book assignment (20 points):

Students are responsible for reading the book, Genome, by Matt Ridley. Topics from each chapter of the book will be chosen and posted on the Blackboard class website. Each student will choose one topic and, using NCBI Pubmed, will prepare a short update on that topic. These updates will be submitted for grading by posting them on Blackboard. Grading will be based on the quality of writing, including grammar, and also on the demonstrated understanding of the selected references. Consult the "Genome blackboard guidelines" for additional information.

30% Final (60 points):

The emphasis on the final exam will be on material covered since the midterm examination. Questions will cover class lectures, assigned readings, debates and guest

speaker presentations. The exam will be CLOSED book and consist of multiple choice and short answer questions.

Course Grading Scale:

90 – 100% = A
80 – 89% = B
70 – 79% = C
60 – 69% = D
less than 60% = E

Final Exam Information:

Date, time, location, **TBA**

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>)

Course Policies:

Submission of Assignments:

Written assignments will be due by 5:00 PM EST on their due date. All reports should be submit to the Blackboard on-line site. Late submissions will lose 10% of the maximum grade per day or fraction of a day.

Attendance Policy:

Students are expected to attend all class, laboratory and discussion periods and will be held responsible for all information presented in classroom and laboratory discussions.

Excused Absences:

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit “reasonable cause for nonattendance” by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences:

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity:

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else’s work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student’s assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is

plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability:

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Classroom Behavior Policies:

Please respect others during class and laboratory periods. Please pay attention and refrain from unnecessary socializing and talking. Please turn off all electronic devices (i.e. cell phones) during class time. Cell/smart phone, laptop, ipad use during class is forbidden – these are distracting and disruptive of others. Cell/smart phone/electronic resource users during class/lab periods will be asked to leave the class/lab room. Repeat offenders will not be allowed to attend class.

Schedule of Lectures
ABT 120 Genetics and Society
Lecture - Monday/Wednesday 9:00-9:50 AM
Lab/Discussion sections – Thursday 3:00 – 4:50 PM, Friday 9:00-10:50 AM and 11:00-12:50 PM
Instructor: Dr. Joe Chappell, chappell@uky.edu
TAs: TBA

Lecture	Day	Date	Topic	Assignment	Reading
	W		Introduction to Course		
	F		Introduction to the Lab/Discussion Group		
1	M		What is Science?		Chap 1
2	W		Science and the Media Ethics and Conduct in Science	Debate topics picked	Chap 20
D	F		Organize debate teams First Genetic Cross	Debate teams assigned	
3	M		What is DNA/What is a gene?		Chap 2
4	W		How are genes characterized?		Chap 3
D	F		Debate team meetings Score F1 generation/Set up F1 Crosses		
5	M		Genetics and Inheritance I		Chap 4
6	W		Genetics and Inheritance II		Chap 5
D	F		Debate 1 Score F2 generation		
7	M		The Green Revolution		Chap 6
8	W		Molecular Genetics I		Chap 7
D	F		Debate 2 Data analysis		
9	M		Molecular Genetics II		Chap 8
10	W		Microbial Genetic Engineering I		Chap 9
D	F		Debate 3 Isolation of your DNA	Lab report 1 due	
11	M		Microbial Genetic Engineering II		Chap 10
12	W		Plant Genetic Engineering I		Chap 11
D	F		Midterm review session		
13	M		Midterm		Chap 12
14	W		Plant Genetic Engineering II		Chap 13
D	F		Debate 4 PCR reactions		
15	M		Unraveling the Human Genome		Chap 14
16	W		Genotyping		Chap 15
D	F		Debate 5 Gel electrophoresis		
17	M		Forensics		Chap 16

18	W		Population Genetics I		Chap 17
D	F		Debate 6 Bioinformatics		
19	M		Population Genetics II		Chap 18
20	W		Human migration		Chap 19
D	F		Debate 7		
21	M		The Personal Genome Project		Chap 20
22	W		Cloning		Chap 21
D	F		Debate 8	Lab report 2 due	
23	M		Animal Genetic Engineering I		Chap 22
24	W		Animal Genetic Engineering II		Chap 23
D	F		Debate 9		
25	M		Human Genetic Engineering I		
26	W		Human Genetic Engineering II		
D	F		Debate 10		
27	M		Catch-up		
28	W		Catch-up		
D	F		Review for final		

THE DEBATES Guidelines

Introduction

A debate is a formal discussion or a contest between two groups of speakers. In a way, it is similar to a trial with the prosecution and defense presenting two sides of an issue in front of a jury. However, in debate, the contest is “won” based on contestants' knowledge, presentation and ability to persuade the judges of the validity of their arguments. In our class debates, you will be graded on quality of the sources you use for content, the coherence and logic of your arguments, and the clarity of your presentation.

As an aside, a disadvantage of the debate format is that it does not tend to promote creative problem solving or conflict resolution. Nonetheless, one advantage of the debate format is that it forces students to articulate an argument and to respond to a verbal challenge. These are important professional skills.

The “Resolution” of a Debate

The resolution is the issue of the debate. It should be stated clearly, so that:

1. It contains a statement
2. Usually it implies an alteration of the present situation (called the 'status quo'.)

For example: "*Smoking is bad*" is not a good topic for a debate, because it is purely a medical question and no change in status quo is suggested. On the other hand, "*Smoking in all public places should be prohibited*" is a better topic, because in some countries smoking is not regulated by law.

Here are the resolutions for the ABT 120 debates:

- Rice genetically engineered to produce provitamin A should be widely and freely distributed in less developed countries.
- The US should prohibit commercialization of genetically engineered plants.
- All food containing genetically engineered ingredients should be labeled as "GMO", to indicate that they contain genetically modified organisms.
- The government should prohibit research to extend the human lifespan to 300 years.
- Cloning of human embryonic stem cells should be banned.
- Genetic engineering of animals to produce pharmaceuticals should be prohibited
- The government should ban research that aims to use synthetic DNA technologies to create new life forms.
- At birth, all children should be routinely screened for genetic predisposition to treatable human diseases
- Medical screens for genetic disorders in the human population should be not be federally or state regulated.
- All people convicted for any legal violation should be DNA fingerprinted.

On (day, month, date) in class you will be given a form to fill out to pick your preferred debate topics. Please indicate your top three choices and preference for either the

affirmative or negative position. We will do our best to accommodate your preferences, but cannot guarantee it. Debate teams will be assigned by xxx. BY xxx, YOU MUST HAVE MET WITH YOUR GROUP AT LEAST ONCE. On that date you must hand in the minutes of your meeting including the signatures of attendees and chair of your group.

Affirmative and Negative Teams

The affirmative team must defend the statement. The affirmative has some freedom in choosing how broad the statement should be extended and how specifically it should be implemented. The affirmative has to show that the change needs to be made and that their plan should be adopted.

The negative team opposes the resolution. The negative team may oppose the affirmative team's interpretation of the resolution, for example, by saying that their definition is too broad, impractical, etc. As a general rule, the negative team must challenge the affirmative plan in the debate round, but may also present its own counter-plan. Overall, the negative team has the burden of proving that either no change should be made, or that the affirmative plan is flawed and should not be adopted.

The Debate Format

The format consists of two monologues followed by questioning from an opponent (cross-examination), and then rebuttals from each team. The debate concludes with a summary from each side. Presentations are 3 minute speeches, followed immediately by cross-examination. In formal debates, no new evidence should be presented in the rebuttals (although we can be flexible about this). Each team member must give either a 3 minute presentation, a 2 minute rebuttal, or a 3 minute summary.

1A	First Affirmative (1 Speaker)	3 min
	Cross Examination period (any N team member asks questions of 1A)	2.5 min
1N	First Negative (1 Speaker)	3 min
	Cross Examination period (any A team member asks questions of 1N)	2.5 min
2A	Second Affirmative (1 Speaker)	3 min
	Cross Examination period (any N team member asks questions of 2A)	2.5 min
2N	Second Negative (1 Speaker)	3 min
	Cross Examination period (any A team member asks questions of 2N)	2.5 min
	First Negative Rebuttal (1 Speaker)	2 min
	First Affirmative Rebuttal (1 Speaker)	2 min
	Second Negative Rebuttal (1 Speaker)	2 min
	Second Affirmative Rebuttal (1 Speaker)	2 min
	Negative Team Summary (1 Speaker)	3 min
	Affirmative Team Summary (1 Speaker)	3 min

Strategy

Start by examining the given topic. You can use any resource to prepare. Think about how the resolution might be interpreted in different ways. The affirmative team must be able to support the statement. For both sides, examples are strongly recommended.

A debater can use note cards for the presentation, but should not read the speech.

However, writing either an outline of your speech, or writing the speech itself, may be an excellent way for you to prepare. In the debate round, some major alteration to either

team's plan may occur. Still, it is better to make these changes based on written material. The second presenter is encouraged to address issues raised in the opposing team's first presentation. Partly for this reason, teams should practice in order to be prepared for the other team's arguments.

The rebuttal periods should be used to defend the issues presented in the first periods (the "constructives"), refining (summarizing and clarifying) the previous arguments, outlining the earlier debate flow, pointing out weaknesses of the rival team, etc.

Research

The evidence supporting both the negative and the affirmative sides needs to be relevant, up-to-date, to-the-point and persuasive. Sources of information may include the publications, periodicals (which may contain extensive analytical articles or just useful data), and an expert in the field of interest. Providing a human aspect to the issues may be very useful. Remember, you may be challenged on the veracity of your sources.

Each team member will be required to independently find and analyze 2 references that the group will use while debating. An individual reference may not be selected by more than one member of the group. The references, along with a 400 word review of the reference articles, must be submitted to the TA by (date). 15% of each student's course grade will be based on the quality of the written analyses of these 2 references. Please consult the "Debate review guidelines" document for detailed instructions.

Although each team will argue only one side of the resolution, both teams should research both sides of the issue. Preparation for your opponent's viewpoint will enable you to better prepare questions that can be used during cross-examination. In addition, such preparation will also give you another perspective on your own speech, will assist you in finding your own weaknesses, and will help you to develop stronger arguments.

Preparation

An inarticulate performance is unsatisfactory for both the participants and the judges. Preparing is time-consuming but worthwhile. Debating is a team event; trust, cooperation and leadership are important for success. All members of the team should have a mutual understanding of their strategy for defending or opposing the resolution, be aware of potential arguments and questions from the opponent's side and understand the role of each presentation/rebuttal in the debate.

Judging

You, the class, are the judges. Teams should be judged on logical and convincing presentation of the issues. Try to ignore your own opinions on the topic. A show of hands will determine the winning team.

Grading

A maximum of 20 points will be assigned based on the clarity (ability to articulate major points), and content (depth and breath of understanding) of your individual speeches. 10 points will be assigned to the team as a whole, based on team work and the quality of key concepts distributed to the audience (see above under "preparation").

An additional 30 points will be assigned based on the written analysis of two references selected by each student (see handout on writing of reviews).

Debate Team Meeting Minutes

This page must be turned in to TA by the end of class, (date).

Debate Resolution:

Debate Position (circle one): FOR AGAINST

Attendees: _____ (chair)

Schedule of next meeting: Date _____ Time _____

Location _____

Outline of Discussion:

ABT 120, Fall 2012
Guidelines for writing reviews of debate literature

Task: Identify two articles from the popular scientific literature on the topic of your debate. According to the guidelines, prepare a separate and brief written review of each article.

Two reviews are required, one for each article.

Your written reviews are due to the TA, by 5:00 pm on Day, Month, date. Late submissions will lose 10% of the maximum grade per day or fraction of a day.

Before starting to write your report, make certain that you have read each of your articles thoroughly.

Your Paper: Please provide a clear and concise review according to the following format.

- 1) In an introductory paragraph, provide a clear introduction to the article.
- 2) In the body of the review, provide a clear description of the main points covered in the article. Some of the articles you select may be primarily fact-based, while others may present a point of view. In both cases, your goal is to convey the main points covered in your article. Assume that your reader is not well informed on the topic, and your job is to provide a concise overview.
- 3) Finish the review with a succinct summary paragraph with an emphasis of your choosing.
- 4) In the "references cited section" (not part of the 400 words, see below), provide your personal assessment of the value of each article to the debate you will be conducting. Are the points or facts central to the debate topic? Do you consider the particular article to be a credible source of information -- why or why not?
- 5) Attach the articles you reviewed to the back of your reviews.

Feel free to consult with your instructors about your paper. Call or email to make an appointment. You are responsible for the veracity of the articles you select. Articles that present persuasive arguments for or against certain points of view are fine; articles that present substantially incomplete or inaccurate information are not acceptable.

Each review should be no more than **400 words in length, excluding the literature citations**. This equates to 1.5 pages at 1.5 line spacing (or 0.75 page of single spaced writing). Please use the following format: **(1) ARIAL 12 POINT FONT, (2) ONE INCH**

MARGINS, (3) 1.5 line spacing in preparing your reviews. *You may not use quotes from the literature or websites -- all writing must be in your own words.*

The reviews should be prepared using a computer and printer. Hand written documents are not acceptable unless you have special circumstances that are pre-approved by the instructor. Make certain that your writing is succinct and focused -- you don't have much space to convey your message. You must turn in a hard copy of your report. Your reviews should show that you have thought carefully about the articles you have selected. Make certain your writing is well organized and that the text flows from paragraph to paragraph. Always use clear and concise language. Avoid the use of slang.

The 400-word goal for each review (800 words combined) is for your text; it does not include the literature citations. At the end of your report, list the references that you have cited.

Example:

Yount, L. 2000. Issues in Biotechnology and genetic engineering, p. 3-25.
Biotechnology and Genetic Engineering. Facts on File, Inc. N.Y., N.Y.

After each citation, include your personal evaluation of how reliable the source is, see above.

You may NOT copy or paraphrase parts of other students' reviews. If we discover this has been done, we will automatically award an "E" to ALL students concerned.

The reviews are due at 5:00 pm on Day, Month, date, as described above. You are encouraged to turn the assignment in early. Late submissions will lose 10% of the maximum grade per day or fraction of a day.

Your reviews will be graded on your ability to:

- 1) follow instructions and answer all questions;
- 2) provide a well-rounded yet concise review of your articles (considering space limitations);
- 3) maintain a high quality of analysis;
- 4) be well organized and succinct in your presentation.
- 5) evaluate the quality of your citations.

ABT120 DEBATE WRITING ASSIGNMENT GRADING SHEET

<u>Points</u>	<u>Grading Criteria (Max Points)</u>
_____	References (6) Points deducted if complete articles were not attached (abstracts only are not acceptable), were not from a credible source, or were not cited properly. _____
_____	Organization/Stayed on Topic (6) Points deducted if paper was exceedingly short or significantly over 400 words or if report was off-topic. _____
_____	Understanding of Subject (5) (How well you understood the subject matter and the reference articles.) _____
_____	Clarity of Writing (5) (How well you were able to communicate the information to the reader.) _____
_____	Grammar/Spelling (5)
_____	Turned in on time (3)
=====	
_____	TOTAL (30)

Comments:

- Other general comments:
- Several papers referred to the book, *Genome*, as a novel. Please be aware that the word “novel” refers to fiction, so *Genome* is not a novel.
 - When citing an article, do not rearrange the order of the authors. In particular, do not put them in alphabetical order. Always cite a reference by the first author.

ABT 120, Fall 2012
Guidelines for Genome Update Written Report

Task: Update a topic from the book, Genome, using recently published scientific books and/or review literature.

Your submission is to be posted to BlackBoard by 5:00 pm on (date). A printed report and copies of three key reference articles are to be submitted to TA by 5:00 pm on the following day (date). Late submissions will lose 10% of the maximum grade per day or fraction of a day.

Background to the assignment: The book, Genome, was written in 1999-2000. While it provides an excellent discussion of human genetics, the scientific knowledge of this subject continues to grow each year. In this assignment, each student will choose a topic that is discussed in the book, and will research that topic to understand and explain recent developments.

On the BlackBoard site, research topics for each chapter have been listed. Each topic is to be researched by only one student. When you have selected your topic, please claim it by posting a statement on BlackBoard (see example on following page). Other students may not research a topic that has already been claimed. (Note: some topics are scientists whose research is discussed in the book.)

Before starting your research, make certain that you have thoroughly read and understand the chapter(s) of the book that discuss the topic. Feel free to consult with your instructors about this assignment.

Finding research material: You must read and understand a minimum of two references on your topic. To begin the literature search, use the posted topic keywords to search NCBI Pubmed (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>). When performing the Pubmed search, limit the responses to those articles published in the "Last 5 Years" (see screenshots at the end of these guidelines). You may limit your search to review articles. After performing a Pubmed search, you may also wish to consult the NCBI Bookshelf and other sources such as Google Scholar and databases available through the library. However, make sure that the key references you cite have been published no earlier than 2006. Before starting to write your report, make certain that you have read each of your references thoroughly.

Format of the report: Please provide a clear and concise discussion of the topic according to the following format:

1) In an introductory paragraph, provide a clear introduction to the topic. Follow this by one or two paragraphs summarizing, in your own words, the discussion of the topic in the Genome book, explaining how it relates to human genetics. To put the topic in

perspective may require the incorporation of ideas from more than one chapter of the book.

2) In the body of your writing, discuss the developments that have taken place since the book was published. Assume that your reader is not well informed on the topic, and your job is to provide a concise overview. Have any breakthroughs taken place? Have certain hypotheses been disproved?

3) Finish the update with a succinct summary paragraph with an emphasis of your choosing. You may wish to describe future research that is taking place or will be needed to further understand the subject.

4) In the "References Cited" section (not part of the 500 words, see below), list the sources you used in your research. Copies of the abstract of the two key references are to be included as part of your report.

Each report should be no more than 500 words in length, excluding the literature citations. This equates to 2 pages at 1.5 line spacing. Please use the following format: (1) ARIAL 12 POINT FONT, (2) ONE INCH MARGINS, (3) 1.5 line spacing in preparing your reports. *You may not use quotes from the literature or websites – all writing must be in your own words.*

The reports should be prepared using a computer and printer. Hand written documents are not acceptable unless you have special circumstances that are pre-approved by the instructor. Make certain that your writing is succinct and focused – you don't have much space to convey your message. Your writing should show that you understand and have thought carefully about the topic you have selected. Make certain your writing is well organized and that the text flows from paragraph to paragraph. Always use clear and concise language. Avoid the use of slang or jargon.

At the end of your report, list the references that you have cited.

Example:

Forman, M.S., Trojanowski, J.Q. and Lee, V. M.-Y. 2004. Neurodegenerative diseases: a decade of discoveries paves the way for therapeutic breakthroughs. *Nature Medicine* 10:1055-1063.

Submitting your report: The completed assignment is to be posted on the class BlackBoard website, on the page corresponding to the chapter and topic you have chosen. (Suggestion: Cut and paste from your word processor to the appropriate BlackBoard page.) Your report must be posted by 5:00 pm on (date). Printed copies of the report and copies of three key references are to be turned in to the TA the following day. Late submissions will lose 10% of the maximum grade per day or fraction of a day.

Grading: Your written reports will be graded on your ability to:

- 1) follow these instructions and answer all questions;
- 2) provide a well-rounded yet concise discussion of the topic (considering space limitations);
- 3) maintain a high quality of analysis;
- 4) be well organized and succinct in your writing.

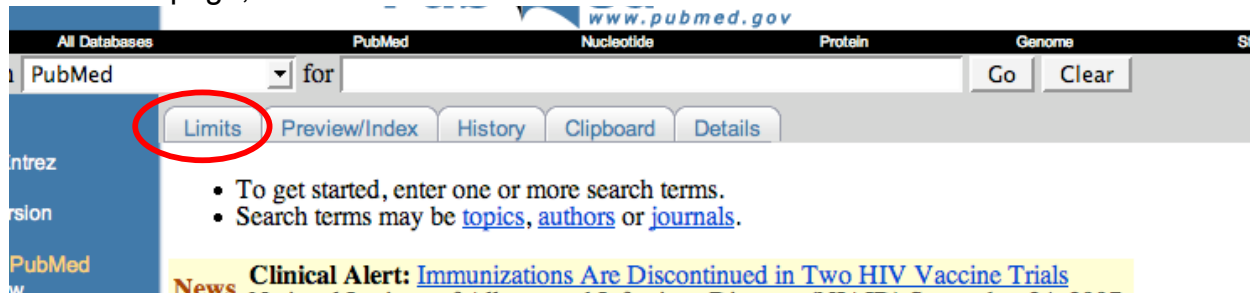
Selecting and claiming a topic: Each student must choose a topic that has not been claimed by any other student. You may NOT collaborate with other students to complete this assignment. If we discover this has been done, we will automatically award an "E" to ALL students concerned.

How to limit your Pub med search:

Go to the URL:

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>

On the first page, click the "limit" button:



On the subsequent page, select "5 years" from the pulldown menu.

All Databases PubMed Nucleotide Protein Genome Structure OM
Search PubMed for [] Go Clear

Limits Preview/Index History Clipboard Details

Limit your search by any of the following criteria.

Search by Author Add Author CLEAR

Search by Journal Add Journal CLEAR

Full Text, Free Full Text, and Abstracts CLEAR
 Links to full text Links to free full text Abstracts

Dates CLEAR
Published in the last: 5 years
Added to PubMed in the Last: Any date

Humans or Animals CLEAR
 Humans Animals

Gender CLEAR
 Male Female

Languages CLEAR
 English
 French
 German
 Italian

Subsets CLEAR
Journal Groups
 Core clinical journals
 Dental journals

- About Entrez
- Text Version
- Entrez PubMed Overview Help | FAQ Tutorials
- New/Noteworthy E-Utilities
- PubMed Services Journals Database MeSH Database Single Citation Matcher Batch Citation Matcher Clinical Queries Special Queries LinkOut My NCBI
- Related Resources Order Documents NLM Mobile NLM Catalog NLM Gateway TOXNET Consumer Health Clinical Alerts ClinicalTrials.gov PubMed Central

ABT120 GENOME UPATE ASSIGNMENT GRADING SHEET

<u>Points</u>	<u>Grading Criteria (Max Points)</u>
_____	References (3) Points deducted if abstracts are not attached, were published earlier than 2006, were not from a credible source, or were not cited properly. _____
_____	Organization/Stayed on Topic (3) Points deducted if paper was exceedingly short or significantly over 500 words, if discussion of new developments was only a small portion of the report, or if report was off-topic. _____
_____	Understanding of Subject (5) (How well you understood the subject matter and the reference articles.) _____
_____	Clarity of Writing (5) (How well you were able to communicate the information to the reader.) _____
_____	Grammar/Spelling (2)
_____	Posted to BlackBoard (2)
=====	
_____	TOTAL (20)

Comments:

Other general comments:

- Several papers referred to the book, *Genome*, as a novel. Please be aware that the word “novel” refers to fiction, so *Genome* is not a novel.
- When citing an article, do not rearrange the order of the authors. In particular, do not put them in alphabetical order. Always cite a reference by the first author.