

**MORAVIAN COLLEGE**  
**IDIS 301 - SOCIAL IMPACT OF GENETIC INFORMATION**  
**SPRING 2009**

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Office hours: Tuesday 10:00 a.m. - noon  
Wednesday 2:00 p.m. - 4:00 p.m.  
and by appointment.

**Overview**

A course designed for students to explore issues related to genetic sequencing. Topics include medical, legal, and ethical implications of decisions about the use of genetic information on themselves and on society. *Prerequisite:* F4 recommended. (U1).

**Course Objectives**

Students will be able to:

1. Explain the nature of genetics and heredity.
2. Discuss current practices in medicine, agriculture, and workplace related to genetic information.
3. Examine existing law related to genetic information.
4. Analyze potential applications of genetic information.
5. Critique implications of potential decisions about genetic information.
6. Appreciate ethical dimensions interconnected with all aspects.

**Required Texts**

Reilly, P. R. (2008). *The strongest boy in the world: How genetic information is reshaping our lives* (Updated and expanded edition.). Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.

**Assignments**

"Information is an undigested burden unless it is understood. It is knowledge only as its material is comprehended. And understanding, comprehension means that the various parts of the information are grasped in their relations to one another—a result that is attained only when acquisition is accompanied by constant reflection upon the meaning of what is studied" (Dewey, *How We Think*, 177).

***Reading Assignments***

Reading assignments will include chapters in the text and recent media articles. Completed reading assignments are expected on the due date. For each reading assignment, write an insightful question for class discussion that relates to the social impact of genetic information. Identify a quotation from the chapter that captures an important concept or that relates to your question. Write out the quotation and indicate the page number. Write a sentence or two explaining your question. Submit your question and quotation at the end of class.

### ***Written Assignments***

You will complete several kinds of written assignments. Written assignments may include use of outside texts, journals, and electronic sources; these will serve to extend your understanding of concepts and familiarize you with resources. Written assignments are expected during the class session on the due date. Grades on late assignments will be reduced for each day late. An assignment that is more than two weeks late will not be accepted. Assignments must be submitted in hard copy; assignments may not be submitted by email.

Assignments should be commendable in substance and appearance. All written work is to be prepared using a word processor. Quality writing is expected in your assignments. They should be well written, that is, they should have a logical sequence and structure, and they should have no errors in spelling or grammar. Papers should be double spaced with 1" margins on all sides of the paper. Use a standard font (e.g., Arial, Times). When your paper is finished, spell (and grammar) check it, then read it before submission.

### ***Classroom Assignments***

There will be short assignments that you will complete individually or with your group, where you will be exploring content in various ways. They will require work during class and outside of class, and may involve presentation to and discussion with the class. All group members must be involved in researching, preparing, and presenting the assignments. These assignments will be graded as excellent (A), satisfactory (B), or unacceptable (F). To be excellent, the assignment must be complete, demonstrate effort, and be creative. Your presentation of the assignment to the class must be accurate and interesting.

### ***Blackboard Discussion Forum***

Important information about our class will be posted on our Blackboard site at <http://blackboard.moravian.edu>. The Discussion Forum will enable us to exchange ideas, insights, and resources about various topics throughout the semester. Information about logging in and using the site will be given in class. You will be expected to post three substantive entries that give insightful ideas, and to reply to three entries posted by other class members. To receive full credit, a minimum of three entries must be posted by February 28, and a minimum of six by April 17.

### ***Identifying Resources***

There are extensive resources available to support our understanding of the various topics. During the semester, report on two references, one from a website and one from a journal. Describe them in your Blackboard posts. In each case, cite the resource specifically and what within the resource was useful to you.

Locate one current event item and report it in a Blackboard post.

To receive full credit, you must complete your three resources by April 17.

### ***Topic Papers***

You will prepare six topic papers to reflect upon your understanding of the social impact of genetic information. Each paper should summarize one chapter that pertained to the topic to show your understanding of the topic, then reflect your opinion about one aspect of the topic. Papers are about 4 pages long. Locate two references (beyond our text) that expand your understanding of the topic or support your opinion. Cite the references in the paper and list them in a reference list.

### **Issue Paper**

Select an issue related to genetic information that interests you. Study the issue to gather various viewpoints and research reports about the issue. Prepare a paper on this issue, present this issue to the class, and lead a class discussion of the issue. The paper should discuss positive and negative aspects of the issue and should present your conclusions, based on your readings.

*Note:* There will be a sign-up sheet of issues.

**Issue statement.** Submit your issue in writing with a brief (one paragraph) statement about why studying this issue is of importance. Your issue statement will be returned at the next class session with comments about any needed revisions. Your issue must be submitted on or before February 17.

**Outline.** Prepare an outline of the major topics that your paper will discuss. Your outline must be submitted on or before March 3. When you submit your outline, attach your issue statement.

**Annotated list of references.** Prepare a list of references. Identify each item as a research report, review article, opinion article, etc. Then write one or two sentences summarizing the content of the item. Your list of references must contain at least 15 items. Your list of references must not contain more than two references from one author. No more than three articles should come from one source (journal, website, etc.). Your list of references must be submitted on or before March 17. When you submit your list of references, attach your issue statement and outline.

Consider your references carefully and select those that are of high quality. This means that you have reason to believe that each source is credible, for example: it is written by a U. S. government agency, an academic institution, a highly regarded organization or agency, or is in a published journal or book. *Note:* Your list of references may be modified as you progress from your issue statement to your final paper.

**Paper.** These elements should be included in your paper:

- Give a detailed explanation of the issue and show its importance.
- Analyze the positive aspects, then the negative aspects.
- Draw critical and valid conclusions.
- Write about the relationship of the issue to other issues we have discussed.
- Cite sources within the paper to identify where the information came from.

The paper will be evaluated on these criteria:

- Statement of the issue and its impact on society.
- Aspects of the issue that are included.
- Definition of terms (as appropriate).
- Analysis of various viewpoints on each aspect.
- Discussion and tentative conclusions about the issue, as supported by analysis.
- Suggestions for procedures to clarify the issue.
- Quality of sources on list of References.
- Quality and timeliness of formative portions (Issue statement, outline, annotated list of references).

The paper should include documentation and contain your final list of references, with annotations. Re-submit your issue statement, outline, and preliminary list of references with the final paper. Your paper should be 15 pages of content and is due on or before April 14.

**Presentation/discussion.** Briefly, present your issue to the class and lead the class discussion during which class members integrate your findings with concepts previously discussed. Prepare a one-page handout about your issue for class members.

### ***Examinations***

There will be a midterm exam and a final exam.

### **Attendance and Class Participation**

Attendance in every class is expected, as it is essential for your comprehension of the concepts covered. Arrive on time and remain for the entire class session.

A missed class cannot truly be made up because of the critical role that discussion plays in each class session. Even so, you are responsible for the missed work. If you are absent, please notify me of the reason. If you do not notify me, your absence will be recorded as unexcused. Absence because of illness will be excused if you bring a note from the health center or from a health professional. If you are excused for a school related activity, prepare a written report to demonstrate your understanding of the contents of the missed class so that your absence can be recorded as excused. Each unexcused absence will lower your final grade. Lateness or partial class attendance will count toward absences.

Be prepared for each class session by completing the assignments and considering ideas and questions that emerge from the assignments. During class, remain actively involved by paying attention and sharing your relevant and thoughtful responses and questions. Class participation on a regular basis is expected to ensure grasp of textual materials and important concepts. Participation will be assessed on evidence of your completion of the assigned work, the relevance and quality of responses, the questions and comments made during class sessions, and your voluntary contributions that enrich class discussions. Be present in class, and stay with the class. Inattention or focus on work unrelated to class activities is not acceptable. Side conversations distract classmates and display disrespect to the speaker. Be sure your cell phone and laptop computer are turned off during class. Lack of appropriate participation or inappropriate participation will lower your grade for each class session in which it occurs.

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the Learning Services Office as soon as possible to enhance the likelihood that such accommodations are implemented in a timely fashion.

### **Grading**

You can expect to work 6-9 hours per week outside of class preparing for this class.

Each assignment will be graded based on the specific criteria stated in the syllabus and distributed during the discussion of the assignment. It is within the instructor's purview to apply qualitative judgment in determining grades for an assignment and for the course.

Assignment of grades will follow these Moravian College Catalog definitions, quoted here:

- A, A-: These grades indicate achievement of the highest caliber. They involve expectations of independent work, original thinking, and the ability to acquire and use knowledge effectively.
- B+, B, B-: These grades indicate higher than average achievement. Evidence of independent work and original thinking is expected.
- C+, C, C-: These grades are given when the student has devoted a reasonable amount of time, effort, and attention to the work of the course and has satisfied the following criteria: familiarity with the content of the course, familiarity with the methods of study of the course, and active participation in the work of the class.
- D+, D, D-: These grades indicate unsatisfactory work, below the standard expected by the College.
- F: This indicates failure.

The Moravian College policy on academic honesty as stated in the Catalog will be followed. Collaboration with peers can be valuable in enabling your understanding of various aspects of your work. However, the work you submit must be the result of your individual effort, apart from the collaborative process. You may use paper and on-line resources as you develop your work. Here, too, the work you submit must be the result of your individual effort, apart from the resources. If you transcribe directly the words from another's work, identify the passage as a quotation and cite the author. If you paraphrase another's ideas, credit the source that you used. Academic dishonesty will result in notification to the Academic Dean, in accordance with College policy.

Classroom assignments	15 %
Topic papers	30 %
Individual issue paper	15 %
Presentation/discussion	5 %
Blackboard	5 %
Resources	5 %
Midterm Examination	10 %
Final examination	15 %

## Course Outline

### I. Genes and heredity

### II. Issues related to use of genetic information

#### Medical and health issues

- Genetic testing
- Genetic diseases
- Pharmacogenomics
- Prenatal genetic testing
- Gene therapy
- Stem cell research
- Genetic counseling
- Psychological impact of genetic knowledge
- Behavioral Genetics

#### Employment issues

- Employment screening

#### Insurance issues

- Life insurance
- Payment for preventive treatment
- Risk classification
- Health insurance

#### Legal issues

- Privacy and confidentiality of genetic information
- Population screening
- Ownership of the genetic code
- Forensics
- Legal rights

### III. Genetic Modification

- Agriculture
- Food
- Health

### IV. Cloning

- Genetically modified animals

### V. Ethical implications

There are ethical considerations related to each of the course topics, and these will be integrated within the discussion of the topics.

## Course Schedule

<u>Week</u>	<u>Topics and Assignments</u>
1/20	Introduction: Course Overview due: 1/22: Reilly - Introduction
1/27	Humanity: Using DNA to Understand Our Past due: 1/27: Reilly - Ch. 1 1/29: Reilly - Ch. 2
2/3	Humanity : Using DNA to Understand Ourselves due: 2/3: Reilly - Ch. 3 2/5: Reilly - Ch. 4 Topic paper - Humanity: DNA and Our Past
2/10	Diseases: The Genetic Revolution in Medicine due: 2/10: Reilly - Ch. 5 2/12: Reilly - Ch. 6
2/17	Diseases (cont.) due: 2/17: Reilly - Ch. 7 Topic paper - Humanity: DNA and Ourselves Issue statement 2/19: Reilly - Ch. 8, 9
2/24	Diseases (cont.) due: 2/24: Reilly - Ch. 10 2/26: Reilly - Ch. 11, 12
3/3	Animals and Plants: Genetic Engineering and Nature 3/3: Midterm Examination due: 3/3: Outline 3/5: Reilly - Ch. 13 Topic paper - Diseases
3/10	Spring break
3/17	Animals and Plants (cont.) due: 3/17: Reilly - Ch. 14, 15 Annotated List of References 3/19: Journey of Man video
3/24	Animals and Plants (cont.) due: 3/24: Reilly - Journey of Man video discussion 3/26: Reilly - Ch. 16
3/31	Society: DNA in our Past and in the Courts due: 3/31: Reilly - Ch. 17 4/2: Topic paper - Animals and Plants Reilly - Ch. 18

- 4/7 Society: Genetic Technologies  
due: 4/7: Reilly - Ch. 19, 20  
Topic paper - Society DNA in our Past and Courts
- 4/14 Society: Genetic Technologies  
due: 4/14: Reilly - Ch. 21  
Individual Issues Paper  
4/16: Presentation/discussion
- 4/21 Interrelating Genetic Decisions  
due: 4/21: Topic paper - Society: Genetics Technologies  
4/23: Presentation/discussion
- 4/28 Interrelating Genetic Decisions  
due 4/28: Presentation/discussion  
4/30: Conclusion

Note: This schedule is tentative and will be modified as necessary.