

**Honor 3215: Genetic & Society**  
**Fall 2008**

Study Guide for Final Exam (Exams 3 & 4: Forensic DNA and GM Foods)

**Concepts:** You will be asked a number of multiple-choice questions on the following key concepts. I estimate ~20 questions.

*Forensic DNA*

DNA Profiles (Fingerprinting)  
Alec Jeffreys  
Junk DNA and STRs  
Kinship & Identity  
Applications  
    Pitchfork (UK) Case  
    Louisiana (US) Case  
    Innocence Project  
Legal Challenges to DNA evidence  
Frye Standard and Daubert Standard  
Judges as gatekeepers (Breyer reading)  
Popular Perceptions: CSI Effect & 3 myths  
DNA Databases & Dragnets  
    Proportionality: Privacy vs. Security  
    Fourth Amendment  
    Genetic Exceptionalism  
    Moral Expressivism  
    Function Creep  
CODIS  
    Database Expansions: Who and What?  
    Family Profiling  
Trust in the system vs. Trust in the science  
Race and ancestry

*GM Foods*

Green Revolution  
Recombinant DNA  
Methods:  
    Agrobacteria and Plasmids  
    Gene Gun  
Uses:  
    Ht, Bt, and others  
Benefits of GM Crops/Foods  
    Producers/Consumers  
    Environment  
    Socio-Economic  
Concerns/Objections to GM Foods  
    “Unnatural” Objection  
    Safety: Health and Environment  
    Socio-Economic  
Precautionary Principle  
Substantial Equivalence  
Global Perspectives on GM Foods  
    Golden Rice Case Study  
    Recent Food Crisis  
    Future Crises

**Short Answer/Essay Questions:** You will be required to write on three of the following essays. There may be a bonus essay question on the exam, not listed below.

- A. Identify what the CSI Effect is and the effect it has had on the use of DNA evidence in the criminal justice system. Then discuss the dangers/risks for the criminal justice system that do or may result from the CSI Effect. In the end, what do you think the net result will be for the criminal justice system as a consequence of popular perceptions about genetics? Explain.
- B. Identify what the principle of proportionality is as it applies to the use of DNA evidence in the criminal justice system. Then discuss how genetic exceptionalism makes the challenge of proportionality a serious issue when it comes to the use of genetic information in the criminal justice system. In the end, do you think current uses of DNA information (as we have discussed in class and readings) in the criminal justice system overstep the bounds of proportionality? Explain.
- C. It has been proposed that DNA profiles in CODIS be expanded to include genetic indicators for physical attributes and ancestry. Identify how this might be a benefit for criminal justice operations. Then identify some of the serious risks involved. In the end do you think that the inclusion of these indicators would amount to a form of “genetic profiling” along the lines of “racial profiling” (which is a bad thing)? Explain.
- D. A popular criticism of GM Foods (and GM agriculture in general) is that it is “unnatural” or violates a natural (or divine) limit to how we should use agriculture. Briefly, and fairly, describe the objection. Then provide an assessment of the objection (i.e., is it persuasive, completely off mark, etc.). In the end, what do you think motivates these types of objections; that is, is this completely irrational or does it derive from some genuine concern? Explain.
- E. Identify and explain at least one serious environmental risk involved with GM Crops. Then assess how serious this risk is: can it be successfully avoided or is it a deal-breaker? In the end, how do you feel about way that humans are genetically modifying crops and the environment: What limits, if any, should we impose on our modification of the environment?
- F. Much of the literature on GM Foods is critical of the socio-economic impact of large-scale GM agriculture, especially in regards to the implementation of GM Crops in developing countries (e.g., Golden Rice and other efforts). Identify and explain at least one of the serious problems associated with this issue: What are the socio-economic risks of introducing GM Crops in these countries? Then identify a serious benefit that may result from the use of GM Crop technology in these countries? In the end, do you think the benefits outweigh the risks that you have identified? Explain.