

Appalachian State University, Department of Interdisciplinary Studies  
**IDS 3100 World hunger, biotechnology and the future of food (3 credits)**

Class: Tuesday and Thursday 11:00 - 12:15

Room: East Hall B-15

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Office hours: Friday 8 AM - 12 PM, and by appointment.

### **General outline**

Food: A basic human need and right. Most of us will take it for granted, and we rarely think beyond our next meal (we may not even think at all about the one we just finished). However, food is an inescapable part of the future, whether it will be a 'sustainable' future or not. The quest for more, and cheaper, food will therefore remain of primary concern to human survival. To increase the production of sufficient food and ensure food security for all, few technologies have raised hopes as high as biotechnology.

Biotechnology, in the simplest and broadest sense, is a series of enabling technologies which involve the manipulation of living organisms or their subcellular components to provide useful products, processes and services. In a sense, biotechnology has been with us ever since our early ancestors started selecting and domesticating specific plants and animals for food, fiber and fuel; Abyssinians started brewing beer from cereals; farmers fermented grapes for wine and milk for cheese; and people baked yeast-leavened breads. What is new in today's biotechnology is the much more deterministic manipulation of DNA within and between species, and the regulatory processes that guide genetic functions.

### **Course objectives**

This course will explore the issues of food production and consumption, the persistence of hunger and malnutrition in a world of plenty, and the role of science and technology in pursuing the elusive goal of 'Food security for all' using a multi/interdisciplinary perspective. The exploration of the topics will consist of both a *personal learning journey* and *collective reflection and discussion* in class. As such, the direction of explorations into the topics and the specific course objectives are open-ended, and will depend on your own learning objectives as well as consensus of class participants.

However, at the end of the course, I do expect students to be able to:

1. Demonstrate an understanding of the nature of hunger in the world, its causes and consequences, and its persistence in a world of plenty.
2. Know how economic, political, scientific, technological, social and cultural institutions affect and direct the nature of food production, and technical/technological developments that support food production and transformation.
3. Develop an understanding and appreciation of the nature of agricultural (bio)technologies so as to be able to make informed decisions about the use of such technology in food production and transformation activities.
4. Be able to work cooperatively with others, and participate effectively in class discussions and assignments.

### **Prerequisites**

Courses which provide the necessary understanding of the biological, physical, economic, cultural, social, political, institutional and philosophical factors related to food production and food security, and the issues around biotechnology will be helpful but are not required. An open mind, the ability to listen

and learn, and of thinking both outside and inside the box of your respective disciplines are desired.

### **Class format**

The class will have a seminar/discussion format, and meet two times a week. The course will use a collaborative learning approach requiring active participation of students in the learning process and the determination of the direction of our collective explorations. Attendance and active participation in all class activities is, therefore, essential and required.

### **Text and readings**

#### Required

Boucher, Douglas M. (Editor). 1999. *The Paradox of Plenty: Hunger in a Bountiful World*. San Francisco: Food First Books.

Hobbelink, Henk. 1991. *Biotechnology and the Future of World Agriculture: The Fourth Resource*. London: Zed Books.

#### Recommended

Brac de la Perriere, Robert Ali & Franck Seuret. 2000. *Brave New Plants: The Threat of Transgenic Crops to Farmers in the South*. London: Zed Books. (*Not yet available*)

Moore Lappe, Frances, Joseph Collins & Peter Rosset. 1998. *World Hunger: Twelve Myths*. New York: Grove Press.

Reserve readings on the library web page (these are in PDF format, you need to have Acrobat Reader to be able to access these pages):

Juma, Calestous. 1989. Explorations in Historical Botany. In: *The Gene Hunters. Biotechnology and the Scramble for Seeds*, pp.37-75. Princeton, NJ: Princeton University Press.

Busch, Lawrence, William B. Lacy, Jeffrey Burkhardt & Laura R. Lacey. 1991. "From Plant Breeding to Biotechnology." In: *Plants, Power and Profit. Social Economic and Ethical Consequences of the New Biotechnologies*, pp. 57-96. Cambridge, MA: Basil Blackwell.

Additional suggested readings (first 4 books are on reserve in the library):

George, Susan. 1989. *How the Other Half Dies : the Real Reasons for World Hunger*. Totowa, NJ: Rowman & Littlefield Publishers (HD9000.6 .G46 1989).

George, Susan. 1984. *Ill Fares the Land: Essays on Food, Hunger, and Power*. Washington, DC: Institute for Policy Studies (HD9000.5 .G385 1984).

Lappe, Marc & Britt Bailey. 1998. *Against the Grain : Biotechnology and the Corporate Takeover of Your Food*. Monroe, ME: Common Courage Press ( S494.5.B563 L37 1998).

Morgan, Dan. 1979. *Merchants of Grain*. New York: Viking Press (HD9030.6 .M68).

Shiva, Vandana. 1991. *The Violence of the Green Revolution*. London: Zed Books.

Shiva, Vandana. 1997. *Biopiracy. The Plunder of Nature and Knowledge*. Cambridge, MA: South End Press.

Shiva, Vandana. 1999. *Stolen Harvest. The Hijacking of the Global Food Supply*. Cambridge, MA: South End Press.

Teitel, Martin & Kimberly A. Wilson. 1999. *Genetically Modified Food: Changing the Nature of Nature*. Rochester, VT: Park Street Press.

#### List of web sources:

USDA Economic Research Service. 2000. Impacts of adopting genetically engineered crops in the United States. <http://www.ers.usda.gov/Emphases/Harmony/issues/genengcrops/genengcrops.htm>

USDA Economic Research Service. 2000. Genetically Engineered Crops: Has Adoption Reduced Pesticide Use? <http://www.ers.usda.gov/Topics/view.asp?T=101006>

USDA Economic Research Service. Domestic food security issues.

<http://www.ers.usda.gov/briefing/foodsecurity/>

Also, a list of resources is available on the library webpage in PDF format.

### **Assignments/projects**

1. Each student will keep a journal/diary recording what (s)he learned and found out about hunger and biotechnology during the semester. Entries can/should refer to readings, class discussions, news reports on radio, TV, newspapers, magazines, etc. The journal should be a personal account of your journey of discovery about world hunger, biotechnology, and the future of food.
2. A one-page (maximum!) summary statement of your journal entries in the previous week: What was the most eye-opening, revealing, shocking, boring (whatever) thing you learned about the topic? Why? How will this affect the direction of your journey of exploration (i.e., where will you go next)? The statements will help along the discussions; they should be handed in each Tuesday at the end of the class.
3. Working in a group of 4 students, organize an event during one class period (e.g., visit to the food bank, panel discussion about the pros and cons of genetic engineering, ....). Prepare any handouts, background readings etc. in time for others to read beforehand.
4. A 10 page (minimum) term paper which will form the capstone of your personal journey of exploration. Whereas the journal can consist of loose thoughts, phrases, ideas, that popped into your mind, or references etc. you encountered on your journey (i.e., it does not have to be in nice prose form), the term paper should be a well-documented and -written account of what you learned about world hunger, biotechnology and what the future of food is, can be or should be. A brief, rough outline of where your learning journey for the term paper is due February 1, and a more-detailed 1-page abstract of the paper is due on April 3.

### **Requirements for written papers**

1. Written papers are graded on scholarly quality, mastery of the material, conciseness, organization, use of readings, grammar and spelling (word processor like Word 97 or WP 7/8/9 have both spell and grammar checkers, so there's no excuse for bad papers!). Style will be a consideration in grading.
2. Papers must be word-processed; title pages, plastic covers etc. (think sustainability!) are not required. Diagrams, drawings, and tables may be used as appropriate.
3. Any assignments turned in late will receive a lower grade. All assignments must be turned in to receive a passing grade for the course.

### **Grading**

Class attendance and participation	20 points
Journal/diary	25 points
Reflection statements	10 points
Group presentation	20 points
Term paper	25 points
Quarter total	100 points

### **Other important considerations**

1. Students are expected to be aware of and follow the ASU's current "Code of Academic Integrity."
2. Incomplete grades are generally not given, and are granted solely at the instructor's discretion.
3. Papers are due at the scheduled beginning of class, and attendance is taken at that time. Tardiness will result in reduced credit.
4. Students are expected to read assigned texts and other materials BEFORE class and be prepared to discuss the material.