EESB16: Feeding Humans - The Cost to the Planet
Course Outline

Prof. R. Fulthorpe
SW533
Email via course intranet page.

Examines the origins and systems of production of the major plants and animals on which we depend for food. Interactions between those species and systems and the local ecology will be examined, looking at issues of over harvesting, genetic erosion, soil erosion, pesticide use, and impacts of genetically modified organisms.
Prerequisite: BGYA01H & BGYA02H

Course Text: None. Reading provided via intranet.
TA: Nathalie Tauvette

Date	Lecture
Jan 9th	**Introduction**
Jan 16th	**Traditional agriculture**
Jan 23rd	**Industrialized crop production**
Jan 30th	**Pesticides, herbicides and fertilizers - toxicology**
Feb 6th	**Meat production and CAFO's**
Feb 13th	**Industrialized fisheries and aquaculture**
Feb 20st	**READING WEEK**
Feb 27th	**Antibiotic use and resistance**
March 6th	**Basics of genetic engineering**
March 13th	**GM crops and their special issues**
March 20th	**GM fish**
March 27th	**Modification of mammals and birds**
April 3rd	**The final package and our forest resources**

Evaluation

Midterm Exam	**30%**
Final Exam	**40%**
Presentation	**30%**

Students will give presentations (powerpoint or web page format) in groups during class tutorials. Presentation material will provided class wide in a linked web page format for final exam study.

Presentation Topics:

1. The ecology/industrial ecology of our major crops: Choose any one of the crops below and investigate:

- **origin of the plant**
- **close relatives and varieties - natural genetic diversity**
- **domestication history**
- **varieties grown**
- **geographic area of production**
- **dependence on pesticides or fertilizers**
- **species affected directly or indirectly by**
- **disease issues**
- **economic benefits or control issues**

Suggestions:

corn, wheat, rice, soybeans, canola, potatoes, tomatoes, apples, citrus, peanuts, cassava (manioc), tea, coffee, chocolate, bananas, pineapples, coconuts, other crop approved by instructor.

2... The ecology/industrial ecology of major fish consumed from wild:

- **habitat**
- **place in food chain**
- **population estimates**
- **harvest methods and collateral damage**
- **pesticide/heavy metal loads**

Suggestions:

Halibut, cod, shark, tuna, mahi mahi, pacific salmon, arctic char, trout, herring, anchovies, lobsters, shrimp, crabs, whale (any type)

3. The life of farmed vertebrate species. Sources, varieties, management, use of antibiotics, cost and type of feed, use and discharge of water, dangers of escape, diseases.

Suggestions:

Tilapia, catfish, Atlantic salmon, rainbow trout, shrimp, cows, pigs, chickens, turkeys, sheep, ducks, ostrich

4. Who are the large corporations that control beef, chicken and pork production in North America and how do they operate? What are their profits? Who are the CEOs?

5. Who are the large corporations that control genetically modified crop seeds and sources in North America and how do they operate? What are their profits? Who are the CEOs?

6. What are the common production systems in Asia and what is the trend with respect to GMO's and CAFO's?

7. Investigate the incidence of herbicide resistant weed evolution.

8. Investigate examples of the evolution of insect resistance to pesticides

9. What is really meant by organic certification? Who polices it and what criteria are used to judge it?

10. How do you eat sustainably/locally in the GTA?

11. Choose an engineered organism, plant or animal, and present information on

- **its development**
- **ownership**
- **uses**
- **costs and benefits**

Round Up Ready Cotton, Soybeans, Corn, Canola, Phytase Pigs, Omega-3 Pigs

Resource Books, Optional Reading

Armesto, Felipe Fernandez. 2002. Near a Thousand Tables: A History of Food. The Free Press. Simon and Schuster Inc. ISBN 0-7432-2644-5

Cook, Christopher D. 2005. Diet for a Dead Planet: How the Food Industry Is Killing Us

Dalby, Andrew. 2000. Dangerous Tastes: The Story of Spices. Universitiy of California Press. ISBN 0-520-22789-I

Goodall, Jane. 2005. Harvest for Hope: A Guide for Mindful Eating. Time Warner Book Group. ISBN 0-446-53362-9

Prance, Sir Ghillean and Mark Nesbitt. 2005. The Cultural History of Plants. Routledge, UK.ISBN 0-415-92746-3

Schlosser, Eric. 2005. Fast Food Nation: The Dark Side of the All-American Meal.