

# **BCUSP 116 (DC2-NW,QSR): Coffee: Science, History and Economics**

## **Course Syllabus-Winter 2008**

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**Office Hours:** Mondays, Wednesdays (11 AM-12 noon, in room 312-UW2), and by appointment. It is best to check with me ahead of time, even for a visit during normal office hours, especially if you are making a special trip for that purpose. I am in one of my offices for considerable periods every day (approximately 8-5) and will be glad to make appointments outside of the nominal office hours.

**Class Times:** 8:45-10:50 AM, Monday and Wednesday, Room UW1-030.

**Mid Term Exam:** February 4, in class

**Final Exam:** March 17, in class

**Writing Assignments:** Due dates in Writing Assignment handouts.

### **Required Texts:**

- “The Coffee Book: Anatomy of an Industry from Crop to the Last Drop”, Nina Luttinger and Gregory Dicum, (The New Press, New York, 2006)
- “Organic Coffee: Sustainable Development by Mayan Farmers”, Maria Elena Martinez-Torres, (Ohio University Press, Athens [OH], 2006)

**Desk Reference:** “The New McGraw-Hill Handbook”, Elaine Maimon, Janice Peritz, and Kathleen Blake Yancey, (McGraw Hill, Boston, 2007),

**Journal (required):** A journal will be required in this course. It is intended to contain notes from outside readings, films, etc. The journal pages will be regularly handed in electronically at Catalyst web site. You will be allowed to use copies of these journal pages during our examinations. See below for details.

**Reserve Material:** The following journal articles and book chapters are included as required reading in the course. They are available on electronic reserve at the following URL:

<http://www.bothell.washington.edu/library/reserve.html>

- Rinehart R., “The Chemistry of Coffee”, Fresh Cup, Vol 10 (9), 2001, pp 20-26.

- Perfecto I, Rice Robert A, Greenberg Russel, and Van derVoort Martha E., “Shade Coffee: A Disappearing Refuge for Biodiversity”, *BioScience*, Vol 46 (8), 1996, pp 598-608.
- MacMahon B., Yen S., Trichopoulos D., Warren K., and Nardo G. “Coffee and Cancer of the Pancreas”, *The New England Journal of Medicine*, 1981, Vol 304(11):630-633.
- Cohn, V. “Harvard Scientists find Link to Pancreatic Cancer.” *The Washington Post*, March 12, 1981, First Section: A9.
- Schmeck Jr., H.M., “Study Links coffee Use to Pancreas Cancer.” *The New York Times*, March 12, 1981, Section B; p. 15.
- Jick H. and Dinan B.J. “Coffee and Pancreatic Cancer.” *The Lancet*, 1981, Vol 2 (8237): p. 92.
- Goldstein H.R., “No Association found between Coffee and Cancer of the Pancreas.” *The New England Journal of Medicine*, 1982, Vol 306 (16): 997.
- Schmeck Jr., H.M., “Critics Say Coffee Study Was Flawed.” *The New York Times*, June 30, 1981, Section C; p. 2; Col 4..
- Haney, D.Q., “Harvard Team Questions its own finding of Coffee-Cancer Link.” *Boston Globe*, Aug 28, 1986, pg 11.
- Hsieh C-C, MacMahon B., Yen S., Trichopoulos D., Warren K., and Nardo G. “Coffee and Pancreatic Cancer (Chapter 2)”, *The New England Journal of Medicine* 1986, Vol 315 (9): 587-589.
- Page Shelly. “Health: it’s time to give coffee a break.” *The Ottawa Citizen*, Feb. 26, 1993, pg A1.
- Higdon JV and Balz F. “Coffee and Health: A Review of Recent Human Research”, *Crit. Revs in Food Sci. and Nutrition*, 2006, Vol 46 (2):101-123.
- VanDam R. M. “Coffee/Caffeine Consumption and Women’s Health,” *The Female Patient*, May 2005 Vol 30:12-17.
- Bacon, Christopher. “Confronting the Coffee Crisis: Can Fair Trade, Organic, and Specialty Coffees Reduce Small-Scale Farmer Vulnerability in Northern Nicaragua?”, *World Dev.*, Vol 33 (3), 2005, pp 497-511.
- Kilian, Bernard, Jones Connie, Pratt Lawrence, Villalobos Andrés. “Is sustainable agriculture a viable strategy to improve farm income in Central America? A case study on coffee.”, *J. Bus. Res.* Vol 59, 2006, pp 322-330.
- Jackels Susan C. and Jackels, Charles F. “Characterization of the Coffee Mucilage Fermentation Process Using Chemical Indicators: A Field Study in Nicaragua.”, *J. Food Sci.* Vol 70 (5), 2005, pp C321-C325.

*Other required articles may be added during the course of the term.*

## Course Description

### DC2: Coffee: Science, History, and Economics.

(Charles F. Jackels)

This class explores several aspects of coffee, a crop critical to the economy of much of the tropical world and a beverage equally critical to the lifestyle of the developed, northern world. This interdependence is reflected in the fact that coffee is the number 2 traded commodity in the world, behind petroleum. An overview of the history and economic importance of coffee will accompany more detailed discussions of: the biological/chemical aspects of the growing and processing of coffee; the ecological considerations of organic/Fair Trade/sustainable coffee production; and the health implications of coffee consumption. A connecting theme will be the examination of how the scientific method is used to address this wide range of important and interesting questions. A field trip to a small-scale coffee roasting company will provide a first-hand opportunity to learn about the opportunities and challenges provided by the specialty coffee market.

This course is designed as a Natural World general education course for a wide range of students. As such, it will have considerable emphasis on the scientific method and its application to this topic.

### **Specific Course Goals**

1. To gain a basic understanding of coffee production, processing, marketing, and consumption from the perspectives of science, history, and economics.
2. To gain a basic understanding of the scientific method and how it can be used to answer applied questions about the biological, chemical, ecological, and health aspects of coffee production and consumption.
3. To demonstrate critical reading, quantitative and statistical reasoning, and analytical thinking skills necessary to understand the claims made in the context of an applied scientific question.
4. To understand the methods and process for generating new scientific knowledge in an applied area.
5. To develop the written and oral communication skills necessary to effectively communicate ideas in the context of an applied scientific question.

### **Background**

It is expected that the students in this course will have the usual high school background in the natural sciences and mathematics that is required for University admission. Students should be comfortable with algebra, and the presentation of quantitative information in graphical and tabular forms.

**Study Groups/Research Clusters.** You will be divided by the instructor into study groups of several students each. These groups will be the basis for discussions both in class and out of class, for group research activity, and peer writing groups. The group may also be called upon to make presentations in class. *Much of this group interaction and peer review of your papers will be accomplished electronically.*

**Writing Assignments.** There will be two “formal” writing assignments, one of which is a group writing/presentation project. Shorter “informal” ones may be part of your homework assignments. Details of them will be given out in separate handouts as each assignment is made. All assignments will be submitted electronically, *and none will be accepted late.*

**Portfolios.** You should preserve all writing materials from this course in order to contribute them to your (electronic) portfolio. This portfolio will be a place for you to collect reflections upon your writing and learning during this and other courses. The portfolio will not be collected in this course, but will be required for use in the Discovery Core III in spring term.

### **Class Participation, Homework and Workgroup Problems.**

Significant class time will be spent in discussion and student presentation mode. Students or workgroups will be contributing to and leading discussions of the material we

have read. Students will be graded based on their participation in these class discussions. If you are missing from class, you cannot make up the participation grade.

There will be homework problem assignments given during the term. They may take the form of essay questions, quantitative problems, abstracts of papers to be read, or other informal writing assignments. Some of these will be individual efforts, but others may involve a collaborative effort with your class partner. Since this is an NW course with a science emphasis, the homework problems will frequently be quantitative in nature.

The workgroups will be given problems to solve, write-up, and sometimes present in class. There will be several of these "Workgroup Exercises" during the course of the term. In some cases the groups will work on them during class time. Members of the workgroup who are not present for these exercises will receive no credit for them.

**Journals.** You are expected to keep an electronic journal/notebook for this course. You may keep it in any format that serves you well. Entries in the journal are to be dated, in chronological order, and are to contain notes that you take on the readings for the course, during class, during group discussions, etc. From time to time, you may be asked to place specific assignments in your journal. These are generally due on Fridays beginning with January 11. At each submission you are to electronically submit copies of the notes you have taken since the last submission. They will be graded for completeness and content. One of the main reasons for losing journal points will be failure to keep current with the readings assigned on the schedule; you are encouraged to read and make journal entries ahead of the schedule. Thoughtful, complete, and punctual entries will generally earn high journal grades. *Your journal will be available to you during the exams.*

**Back-up Copies.** You are responsible for maintaining back-up copies of all assignments. If an assignment should be lost or misplaced during the submission or grading process, it is your responsibility to provide a copy of that assignment upon request. Always maintain current backup copies of all of your work. Computer crashes do not qualify as "emergencies" in this class.

**Exams.** The two examinations will each be based upon approximately one-half of the course material. The exams may be mixtures of quantitative problems, short answer questions and short essay questions. The exams are likely to be given in a computer lab room, with the option of taking them electronically or by hand. If you choose to write the exams by hand, they are to be completed in ink in standard examination books (green or blue books from the book store). **Buy two exam books ahead of time, so that you do not have to waste your exam time going to the book store!** Most exam and test questions will be graded primarily for content and your understanding of the concepts involved. Errors in grammar, spelling, etc., will influence these grades to the extent that they make it difficult to understand your reasoning and explanations. *A calculator may*

*be needed for the exams. You should arrange to borrow one if you do not have one already. N.B.: You may refer to your Journals during the exams.*

**Classroom Rules.** These basic rules, in addition to the requirements of the UWB Handbook, apply to the instructor and all students at all times in the classroom. If you cannot observe them at any time, you are expected to leave the classroom:

- No use of computers for web surfing, e-mail, or any other activities not directly related to class.
- No headphones, blue tooth earphones, etc in the classroom.
- No cell-phone calls, rings, musical interludes, etc., during class.
- All views are to be heard and engaged respectfully. As scholars, we are expected to analyze subject matter critically and express reasonable positions that are based on logic and fact rather than on emotion. **In no case are *ad hominem* arguments permitted in BCUSP 116.**

**Attendance: Class & Exams.** Any excuse for missing an exam *other than illness or family emergency* must be cleared with me at least one week ahead of time. If you cannot attend class on an exam day because of illness or emergency, you are expected **before class** to contact me by phone, leave a voice mail message, leave a message for me with the Computing and Software Systems office, or leave me an e-mail message. Failure to notify me in one of these ways may result in you not receiving consideration for a make-up examination.

Regular class attendance is expected, although roll calls will not be generally taken. If you are not present to participate in class discussion, work group discussion and/or presentation of a “homework” exercise, that will, of course, profoundly affect your grade on that assignment. Missed in-class work (for whatever reason) *cannot* be made up.

**Late Assignments.** Assignments with due dates will not be accepted late, *unless otherwise noted in the assignment instructions*. If you are out of town on an assignment due date, it is your responsibility to arrange for internet access and submit the assignment electronically or to submit it before you leave.

### **Documented Disabilities**

If you believe that you have a disability and would like academic accommodations, please contact Disability Support Services at 425.352.5307 or at [rlundborg@uwb.edu](mailto:rlundborg@uwb.edu). After an initial intake appointment, you should be prepared to provide documentation of your disability in order to receive assistance.

## Academic Honesty

The highest standards of academic honesty will be expected in this class. Cheating and plagiarism in any of their forms are unacceptable. At the least, a grade of zero will be assigned to any work that is the product of cheating or plagiarism. Plagiarism is also discussed in the 1993-1995 UW Bothell Catalog:

"Plagiarism is the use of the creations, ideas or words of someone else without formally acknowledging the author or source through appropriate use of quotation marks, references, and the like. Plagiarizing is stealing someone's work and presenting it as one's own original work or thought. Student work in which plagiarism occurs will not ordinarily be accepted as satisfactory by the instructor, and may lead to disciplinary action against the student submitting it. Any student who is uncertain whether his or her use of the work of others constitutes plagiarism should consult the course instructor for guidance before formally submitting the course work involved."

Work that is assigned to you alone is to be assisted by no one else. When collaboration on homework is permitted, that fact will be made explicit. Assume that all assignments are to be individual work unless I indicate otherwise. The official UWB information on academic integrity is to be found at <http://www.uwb.edu/students/policies/integrity.html>. Each student is responsible to read and understand that information. *It is your responsibility to clarify with me any uncertainty that may exist on this question. Do not assume that an action is acceptable; ask me to be sure.*

Work turned in for this course may be subject to electronic checking for plagiarism.

## Grades.

The final grade will be determined numerically by averaging your scores with the following weights:

Final Exam	20%	Homework/Informal Writing Assignments (5 or 6)	25%
Midterm Exam	15%	Writing Assignment #1	10%
Journal	5%	Writing Assignment #2	15%
Workgroup assignments, Peer Review and class participation	10%		

Most grades given during the course of the term will be based on a 100-pt scale. The **official decimal class grades** (0.0 - 4.0) will be determined from a weighted average of your individual grades. A weighted average of 96 will be assigned a decimal grade of 4.0, and a weighted grade of 55 will be assigned a decimal grade of 0.7. Intermediate grades will be determined by a linear relationship between these two limits. This scale represents a *minimum* decimal grade. If I judge it to be appropriate, I will give higher grades than those indicated by this scale. Based on experience, the class GPA will likely fall in the range 2.7-3.0 (a “B” average).

The following table represents the official UW conversion of standard letter grades to the UW decimal grade scale and the conversion to the 100-pt scale used in this class:

	A Range		B Range			C Range			D Range		
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
Min Decimal	3.9	3.5	3.2	2.9	2.5	2.2	1.9	1.5	1.2	0.9	0.7
Min 100-pt	95	90	86	82	77	74	70	65	61	57	55

### Library Materials:

There is a link on the course home page that connects to the library reserve catalog. Many useful reference materials are to be found in one of the UW libraries on the UWS campus rather than at UWB. These can be obtained with little effort via electronic document delivery or the courier service. Make sure you know how to use this service.

The electronic reserve page for the course has articles that we will be reading during the course of the term. If you wish hard copies of these articles, you are responsible for printing them. There is a link to the E-Reserve on the course home page.

## Use of E-Mail

You will be required to use e-mail as part of this course. Since our personal contact hours are quite limited, this will be a major avenue for our communication. In addition, I will use the class e-mail list, listserv, and web page as means of broadcasting information to the class. It is assumed that class members are reading their e-mail on a daily basis. You may, of course, read your e-mail anywhere of your choosing, but it is required that you will have an active account of the form [UWNetID@u.washington.edu](mailto:UWNetID@u.washington.edu) that you check or forward daily. You can set up your account from the UW Web page. There is also a link on our course home page that takes you to UW on-line documentation that explains how to set up an account, how to send e-mail, etc.

There is a web-based U-mail form set up that allows you to send me either identified or anonymous e-mail from the browser. It can be found at URL: <https://catalysttools.washington.edu/umail/form/jackels/2670> and there are links to this Umail form on the course home page.

## Class Listproc

A listserv has been set up for the class. Any message or reply sent to this address is rebroadcast to the entire class. You are welcome to use this when you want to communicate with the entire class. Your UWNetID e-mail account is automatically subscribed to this listproc. The e-mail address for this is: [bcusp116a\\_wi08@u.washington.edu](mailto:bcusp116a_wi08@u.washington.edu)

Note the single underscore between "bcusp116a" and "w08"; it is required.

## Use of Class Discussion Board

I have set up a computer discussion board for our use. This is an excellent medium for class discussions. Any class member can post to the bulletin board. It forms a "running" conversation that can be about the lectures, problem assignments, etc. I am using E-Post for this purpose. The bulletin board is found at:

<https://catalysttools.washington.edu/gopost/board/jackels/3729/>

A link to this bulletin board will appear on the course web site. When you first access this message board, you will establish a username and password. You can also click on "configure" in order to select the type of e-mail notification to be provided. You can be automatically notified when someone has posted a message to the board.

## Electronic Submission of Assignments

Most assignments for this course will be submitted electronically. The Catalyst drop-box site for this purpose is found at:

<https://catalysttools.washington.edu/collectit/dropbox/jackels/1178>

### **Peer Review Site**

To assist in peer review of your papers and their preliminary submissions, a peer review site has been set up for the class. We will discuss in class how to use it. It is to be found at:

### **Course Home Page**

My personal home page is found at the URL:

<http://faculty.washington.edu/jackels>

Click on the entry referring to this course and you will find yourself at the course home page:

<http://faculty.washington.edu/jackels/bcusp116.w08>

**Tentative Class Schedule (subject to change)**

<b>DATE</b>	<b>READING</b>	<b>TOPICS</b>
Jan 7		Black Gold video (DVD BOT 829); Class Intro
Jan 9	Chs 1-2 of Luttinger	<b>Simulation #1</b> History of Coffee; Coffee Plant; <b>Quant Skills Center Tutor (short visit)</b>
Jan 14	Ch3 of Luttinger;	Coffee Processing; International Coffee Trade; Writing Style discussion
Jan 16	Paper by Jackels and Jackels	The scientific method: its application to problem identification, observation, and hypothesis generation.
Jan 21		<b>HOLIDAY</b>
Jan 23	Paper by Rhinehart	Effects of roasting on coffee; Coffee flavor
Jan 28		<b>Rob Estes, Library</b>
Jan 30	Ch4 of Luttinger;	Continuation of coffee science, Intro to health aspects
Feb 4	{review}	<b>Exam 1</b>
Feb 6	Reading on Probability and Stats	Intro to probability, stats, and hypothesis testing. <b>Nicole Hoover, Quant Skills Center (full class)</b>
Feb 11	Paper by MacMahon; News articles by Cohn, Schmeck (2), and Haney Paper by Jick and Dinan; Paper by Goldstein Paper by Hsieh et al.	Health aspects of coffee consumption; The saga of coffee and pancreatic cancer
Feb 13	News article by Page; Paper by Van Dam; Paper by Higdon	Current knowledge of coffee and health
Feb 18		<b>HOLIDAY</b>
Feb 20	Chapters 5-6 of Luttinger	Specialty and sustainable coffees; Video
Feb 25	Chs 4-7 of Martinez-Torres	Organic coffee farming in Mexico
Feb 27	Chs 8 & 10 of Martinez-Torres; Paper by Bacon; Paper by Killian	<b>Simulation #2</b> Economics of Organic Coffee Framing
Mar 3	Ch 9 of Martinez-Torres; Paper by Perfecto	Ecological benefits of Organic Coffee Farming
Mar 5		Continuation
Mar 10		<b>Group Presentations (30 min/each)</b>
Mar 12		<b>Group Presentations (30 min/each)</b>
Mar 17		<b>Final Exam</b>

<b>Tentative Assignment Schedule (subject to change)</b> <b>Due at 12:00 noon unless noted otherwise</b> <b>(except as noted, all assignments are due on Fridays)</b>				
<b>Date</b>	<b>Hwk</b>	<b>Writing Assignment</b>	<b>Journal Pages</b>	<b>Other</b>
<b>Jan 9 (Wed)</b>	Homework #0 (Test Assgt)			Class Survey
<b>Jan 11</b>	Homework #1		Yes	
<b>Jan 18</b>	Homework #2		Yes	
<b>Jan 25</b>		WA #1 Rough Draft	Yes	Post WA#1 rough draft to Peer Review Group for comment.
<b>Feb 1</b>		Final version of WA #1	Yes	
<b>Feb 8</b>	Homework #3	WA#2 1 <sup>st</sup> deliverable	Yes	
<b>Feb 15</b>	Homework #4		Yes	
<b>Feb 22</b>	Homework #5	WA#2 2 <sup>nd</sup> deliverable	Yes	
<b>Feb 29</b>	Homework #6		Yes	
<b>Mar 7</b>			Yes	
<b>Mar 14</b>		WA#2 Final Products		
<b>Mar 17 (Monday)</b>		Critique of Group		

All of these assignments are to be turned in electronically before 12 noon on the day shown. Drop boxes have been set up at the course turn-in site:  
<https://catalysttools.washington.edu/collectit/dropbox/summary/jackels/1178>

Other forms of submission, such as e-mail attachments, will not be accepted.