

Science of Chocolate – BIO50-194 – Summer 2021



Natural Science General Education with Social Justice Emphasis

May 12th – June 17th

Class – **On-line Ring Central Platform**: MTuWTh 1:30 pm = 4 pm

Office Hours: As requested

Dr. Romi Burks, Professor of Biology

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Useful website: www.profromi.com

This course explores the biology and chemistry of *Theobroma cacao*, the plant from which people make chocolate. Topics in the course will include pollination ecology, genetics, antioxidants and health and climate change. In addition, production versus consumption of chocolate will be discussed in light of economics and social justice issues including child slavery, indigenous communities and agricultural goods. Class activities will include a combination of inquiry-based projects, class discussion and quantitative reasoning. (SJ) (NS).

SCIENCE OF CHOCOLATE STUDENT LEARNING OUTCOMES:

Students will be able to:

1. Describe the chocolate-making process from "pod/bean to bar" and identify specific flavors or tones from chocolate bars.
2. Differentiate between confectioners, chocolatiers and chocolate makers.
3. Gain skills in the scientific way of thinking.
4. Articulate clearly multiple connections between chocolate and different disciplines.
5. Explain inherent difficulty involved in defining the term "species" and how that relates to the varieties of *Theobroma cacao*.
6. Discuss what "socially responsible chocolate" means and give examples.
7. Express their creativity and understanding of the course themes within chocolate class by creating a piece of original art.
8. Deconstruct meanings behind the dark side of chocolate.
9. Develop a basic palate to differentiate flavors in "real" chocolate.
10. Experience the world through chocolate.

SOME OF WHAT CHOCOLATE CLASS CAN FOSTER:

- Reduction in the fear of science by using the familiar to teach core concepts
- Reflective nature of informed personal choice
- Recognition and creation of interdisciplinary connections
- Questioning of prior assumptions
- Awareness of commodity fetishism (consumer awareness)
- Recognition of social justice issues
- Critical analysis skills in texts and media
- Understanding of impact of global market, food politics and corporate social responsibility
- Insight into historical and current slavery practices
- Community in the classroom
- Comparison between scholarly versus non-scholarly sources
- Creativity and out-of-the-box thinking

"Social Justice" general education requirement:

This course satisfies the Social Justice general education requirement. The course encourages you to understand the relationship between difference and inequality (i.e. how social differences are constructed), and how human differences have been used to justify structures of power and injustice (and how they get tied to inequality), and how people have engaged in activism to promote social justice (i.e. mobilized against those systems).

Texts:

1. Ramsey, Chocolate - 9781465454065
2. Charlie and the Chocolate Factory
3. Access to 3 Films
4. Supplemental materials as found on Moodle

On-line Etiquette & Expectations: I had a great time teaching this course on-line last summer. In addition, I often teach in 2.5 hour blocks and I'm very comfortable with planning class periods that include several activities. Some may take more or less time than expected so we will maintain some sense of flexibility.

1. All class periods will be in RingCentral which is a Southwestern version of Zoom.
2. Students will receive an email invitation to RingCentral the night before class.
3. All materials or links for class will be posted on Moodle.
4. We can/might record class when someone is missing..
5. Official class emails will come from Moodle.
6. All students should expect to keep their cameras "on" during class. Exceptions may include unexpected interruptions, needed restroom breaks, etc...
7. Generally microphones should be "muted" by students to limit external noise/feedback. However, students should always feel free to "unmute" and interrupt or ask questions. Dr. Burks will generally maintain her microphone unmuted.
8. Students will be expected to engage in the chat, especially when asked for check-ins from Dr. Burks. Individual chats can also be sent.
9. Students can put an "X" in the chat to indicate an interest to speak or use the "hand-raising" function in RingCentral.
10. Any technical difficulties, please text 512 869 8098.

CHOCOLATE PIECES (300 points):

1. Participation (10%) 30 points

Individual* Points. Self and peer evaluated includes, but is not limited to:

Timely arrival and attendance
 Engaged presence – camera online
 Group dynamics
 Sharing Chocolate Tidbits --- **2 curious things you discover about chocolate**
 Work ethic
 Willingness to engage

2. Tasting Journal (15%) 45 points

Daily class entries that show engagement in the tasting through notes on the tasting templates. You should make a copy of the Template that gets shared with Dr. Burks. Weekly reflections (minimum 400 words) focus on how the student's palette has changed (not just a summary)..

Weekly reflections for tastings will be due on the following Sunday by noon.

3. Art + Science Project (15%) 45 points

Individual Points. See separate rubric for details. Includes production of an "original" piece of art (all types) focused on the intersection of chocolate, art & science. Evaluation will include submission of an idea, short description, mid-term progress report, presentation and exhibition card.

1. Topic Idea	Due Thursday, May 20	3 points
2. MidTerm Progress	Due Thursday, June 3rd	5 points
3. Presentation	Due Wednesday, June 16	10 points
4. Project Itself	Due Wednesday, June 16	20 points
5. Reflection	Due Friday, June 18	7 points

4. Class Presentations (10%) 3 x 10 points = 30 points - Group Points This portion of class will include participation and completion of projects and/or worksheets associated with class activities. .

1. History Timeline	Due Tuesday, May 18
2. Charlie and the Chocolate Factory	Due Monday, June 7
3. Health Myths	Due Monday, June 14

5. Science-based Press Releases (20%) 2 x 30 points = 60 points - Individual Points. See separate rubric for details. Students will select a recent (2012-current), peer-reviewed primary literature scientific paper to translate into approximately 500 words. Students should choose to complete at least 2 of 4 areas in which to write. If students choose to complete more than two, then the top two grades will count. Deadlines for these assignments will be flexible. Students should complete the first one by **Wednesday, May 26th and the second**

by Wednesday, June 9th. All papers require prior approval.

6. Weekly Google “Chocolate Block” Quizzes (30%): 6 x 15 points = 90 points - Individual or Paired. These quizzes will be done on Google Drive and will be posted on the Friday of the week preceding their due date. Students must write out the Honor Code in answer to the final question for the quiz to count. If students choose to take it as a pair, then students will receive the same grade. The quizzes will include a combination of multiple choice, matching/vocabulary and a couple of short answer questions.

1. Chocolate Block Quiz 1: Due Tuesday, May 18
2. Chocolate Block Quiz 2: Due Monday,, May 24
3. Chocolate Block Quiz 3: Due Tuesday, June 1
4. Chocolate Block Quiz 4: Due Monday, June 7
5. Chocolate Block Quiz 5: Due Monday, June 14
6. Chocolate Block Quiz 6: Due Friday, June 18

	Points	% of Grade	Composition
Participation	30	10	Solo - Peer
Tasting Journal	45	15	Solo
Art-Science Project	45	15	Solo
Class Presentations	30	10	Class
PL Articles	60	20	Solo
Quizzes	90	30	Solo - Pair

Additional Class Information:

WORK OUTSIDE OF CLASS: I anticipate that students will spend approximately 2 hours out of class for every 2.5 hours in class. In addition, students will watch three films (*Charlie and The Chocolate Factory* - 1971 and 2005 versions) and *Chocolat*. The majority of this time will be spent working on press releases and completing chocolate block quizzes. The reading associated with the class should not take extensive amounts of time.

MOODLE: Southwestern uses an interactive course management system called Moodle. We will use Moodle to share materials and in some cases, submit assignments. You should automatically be loaded into the system and can access Moodle via the SU Portal or directly at lms.southwestern.edu. Your username and password is your regular SU electronic ID (same as your email). With any technological application, sometimes things can go awry. Melanie Hoag (hoagm@southwestern.edu, x1644) can be of assistance with any Moodle difficulties.

ATTENDANCE RELIGIOUS AND CULTURAL TRADITIONS: Southwestern University

recognizes that it has students from a variety of religious and cultural traditions that have special days of observance or celebration that may take students out of their regular activities on certain days during the school year.

1. *As far in advance as possible, the student is expected to notify the professor(s) or instructor(s) of the class(es) to be missed.*
2. *The student is expected to learn what assignments or exams are due or will be assigned on those dates and negotiate with the professor(s) or instructor(s) alternate times for fulfilling those requirements.*
3. *Students should be prepared to fulfill the requirements prior to the class(es) to be missed.*

OPEN COMMUNICATION: Students are expected to discuss questions and areas of concern with Dr. Burks.

LATE PAPERS: Given the quickness and intensity of Summer Term, deadlines tend to be fluid. If you feel that you need more time to produce quality work, then extensions or revised deadlines can be implemented but I encourage you to meet deadlines so that work does not pile up. Late work submitted without notice will receive a reduction of 20%.

HONOR CODE: You must complete all work independently unless otherwise noted by Dr. Burks. As all work will be electronic, you must type out the honor pledge IN FULL on all assignments.

I have acted with honesty and integrity in producing this work and am unaware of anyone who has not.

Please take responsibility for taking care of this; I will not chase you down if you forgot the pledge. On electronic submissions, you must have it on your submission **(the best practice is to place it in the Heading followed by your initials)**. If you are unclear on the concept of plagiarism or cannot sign the honor code in good faith, please see Dr. Burks. When in doubt, paraphrase and cite the BIOLOGY CITATION GUIDE. We will use the APA format for citations. Any perceived impropriety will be discussed with the student and appropriate action taken.

WRITING HELP: Besides feedback from your peers and myself, Southwestern provides a number of resources aimed at improving your writing including the Debby Ellis Writing Center where individual consultation appointments are available.

EMAIL: I will frequently e-mail to remind you of deadlines or to clarify points from a lecture. Please check daily.

FACEBOOK/SOCIAL MEDIA POLICY: All official class information goes through Moodle or myself to your SU email. If someone wants to take the initiative to make a group, I am in favor of group studying and brainstorming. I'm happy to be "A Friend" with SU students with the knowledge that I am a faculty member at Southwestern first and take that seriously. If I see something that worries me, I will follow up. I believe in better safe than sorry. At the same time, I'm certainly not in the habit of checking up on students but cannot help but read updates when posted. My Profile page is all-inclusive for my friends, family and some

students. I do not post anything there that I am not willing to publicly share (this is good advice). So, if you would like to request to be my friend, I will certainly accept but I do not want to compel people. As another social media alternative, you can follow me on Twitter @ProfRomi. I originally started a Twitter account to keep up with the chocolate world and have found it a good source of news (I can recommend some to follow to get started).

ACCOMMODATIONS: *Southwestern University will make reasonable accommodations for persons with documented disabilities. Students should contact the Center for Academic Success and Records to determine their eligibility to receive accommodations."*

Official accommodation notification should be communicated as soon as reasonably possible. Beyond this, we all need some version of accommodations to make our class space accessible, because we all learn in different ways. Please feel free to manage your classroom experience in the way best for you. Reasonable requests will always be carefully considered for feasibility and equity.

- ❑ Library and Academic Support services -Dave Seiler has confirmed that the Center for Academic Success is still providing support. (Dave recommends that students consult the [Academic Success website](#) and the "[Support During COVID-19](#)" section of that website.
- ❑ Technical / computer help support services - Students can receive technical support through the InfoDesk. They can call the support line (512.819.7333) or send an email to infodesk@southwestern.edu. Support is available M-F, 8-12 and 1-5.
- ❑ Counseling / health support services - Jason Bonick has confirmed that these will be available virtually this summer through the [Counseling Center's](#) website.

GROUP WORK: All students are expected to contribute equally to group or pair projects.

FOOD: Please avoid eating anything but chocolate during class. You should have water available as a palate cleanser.

CRITICAL READING GUIDELINES: Even given the dark side(s) of chocolate, it will be difficult for chocolate class not to be fun. However, whether you will enjoy and learn a great deal from this class is almost entirely up to you and your commitment to reading the course materials and engaging in classroom discussion. Thoughtful reading is both active and responsive. As a general rule, thoughtful engagement either: (a) uses readings and/or videos as the basis for formulating interesting discussion questions; (b) uses readings and/or videos as a basis to develop an interesting positive argument of your own; and/or (c) treats an author/work as an opponent worth refuting.

TASTING EXPECTATIONS: Students should be willing to try all of the chocolate whether or not it suits their tastes. It's perfectly fine to spit out chocolate that students find unpalatable but students should try to keep chocolate on their palate for 30 seconds. Each tasting only requires a small amount of chocolate (i.e. about the size of a peanut/pea). The tastings provided in your materials should allow for at least two possibilities for tasting.

All students designate a “peer friend” that they can text if Burks unresponsive.

WHAT TO DO IF:

Ring Central Link doesn't work:

- Try clicking from a different source (syllabus, Moodle, Google Calendar)
- Send Burks an email for a new invitation.
- Send your “peer” friend a text to let Burks know you need an invite

If your camera or microphone doesn't work:

- Double check that you clicked the right buttons
- Send Burks a Chat message in Ring Central
- Exit out of Ring Central and come back in

If Burks disappears or has technical difficulty:

- Check the Ring Central chat
- Check your email for a Moodle Announcement
- If you can continue without Burks, do so. If the issue is not resolved within 15 minutes, then work independently for rest of class time

If you cannot see a screen “shared” by someone or you cannot hear them:

- Let them know - either in chat or verbally

If you need to take a break:

- If possible, send a quick Chat message that says 'brb' (be right back)
- Turn off your camera
- Return and make sure you are muted

If you lose power and cannot participate remotely:

- If possible, send a text to Burks (512 869 8098) and let your “peer friend” know. Follow-up when able.

PS - Avoid brain aphids. If you feel your brain being sucked away, please alert Dr. Burks at once.

DOCTOR FUN



"I'm afraid it's brain aphids."

10 Aug 98

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<http://sunsite.unc.edu/Dave/drifun.html>
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Tentative Schedule - subject to change as needed

Date	Day	Subject	Book Reading	Tasting	Due
WEEK 1					
5/12	W	Day 1 Chocolate		Candy vs. Chocolate	
5/13	Th	Chocolate Vocabulary	Ramsey Intro	Bean to Bar Full Tasting	
5/14	F	No class Friday		Sunday - TastingRef	
WEEK 2					
5/17	M	History of Chocolate	Ramsey Taste	History and Culture	
5/18	Tu	History: Advancements Library PL Tutorial Chemistry Intro		Chemistry & Taste/Aroma Connections	Q1 Group Timeline
5/19	W	Chemistry: Antioxidants		Chemistry Percentages	
5/20	Th	Chemistry: Production		Roasting	Art Topic
5/21	F	No class Friday			
		<i>Watch CCF - Gene Wilder</i>		Sunday - TastingRef	

WEEK 3					
5/24	M	Chemistry - Cocoa Butter		White Chocolate	Q2
5/25	Tu	Film - Setting the Bar	Ramsey Understand	Setting the Bar - Peru	
5/26	W	Social Justice - Corporate Chocolate		"Hershey's"	PL 1 DUE
5/27	Th	Biology: Evolution		Diversity	
5/28	F	No class Friday			
		Watch CCF - Johnny Depp		Sunday - TastingRef	
WEEK 4					
5/31	M	Labor Day - No Class			
6/1	Tu	Biology: Conservation		African Chocolate	Q3
6/2	W	Biology Genetics		South America Terroir	
6/3	Th	Genetics continued... Intro to Candy Boys		Volcanic Terroir	ArtMid
6/4	F	No class Friday			Complete Charlie & Chocolate
		Watch Chocolat		Sunday - TastingRef	
WEEK 5					
6/7	M	Social Justice & Sugar: Candy Boys Discussion	Ramsey Explore Candy Boys	Alternate Sugars	Q4
6/8	T	More Social Justice:		Milk Chocolate 1	
6/9	W	Sugar continued Maybe: The Chocolate Industry: Dark Side of Chocolate Video		Milk Chocolate 2	PL 2 DUE Social Justice & Sugar: Candy Boys Groups
6/10	Th	Chocolate & Health		Milk Chocolate 3	
6/11	F	No class Friday		Sunday - TastingRef	
WEEK 6					

6/14	M	Chocolate & Health 2	Ramsey Choose	Neuroscience - Health	Q5 Group Health Myths
6/15	Tu	Neuroscience		Neuroscience - Stimulants	Participation
6/16	W	Art Projects & Wrap-Up		Globalization	ArtDue
6/17	Th	The Future of Chocolate		Best of the Best	
6/18	F	No class Friday			Q6 ArtReflect Sunday TastingRef