

AGRO 2021 (3 credits)
Coffee Matters
Fall 2026

INSTRUCTOR

Rex Bernardo

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& Endowed Chair in Corn Breeding and Genetics

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TEACHING ASSISTANT

(To be identified in Summer 2026)

SCHEDULE AND FORMAT

This in-person class will meet weekly for a 50-minute lecture (room to be determined) and a 100-minute laboratory session at Plant Growth Facility Room 140B. Active participation and engagement are expected. Office hours are by appointment.

As per University of Minnesota guidelines, the workload expectation for this three-credit course is nine hours per week. This includes three hours per week for course instruction and six hours per week for study outside of the class meeting periods.

COURSE DESCRIPTION

This course is all about coffee: its history, geography, botany, breeding, production, processing, supply chain, sustainability, healthfulness, and brewing. Through team exercises, students will discover how measurable qualities of a cup of coffee are influenced by factors such as species, type of roast, grind size, brew ratio, temperature, water quality, and brewing method. The class will culminate with a team competition judged by a panel.

The goal in this course is for students (1) to discover and appreciate how coffee, which seems so simple, is the product of a creative and complex process and (2) to develop skills in oral and written expression, working with others, and solving problems in a manner that combines science and art.

Students who are unable to taste or drink black coffee are unlikely to enjoy AGRO 2021.

PREREQUISITE

None

This syllabus is available in alternative formats upon request.

Please contact Rex Bernardo at bernardo@umn.edu, 612-625-6182, or in 302 Hayes Hall.

STUDENT LEARNING OUTCOMES

AGRO 2101 contributes to the following student learning outcomes of the University:

1. *Identify, define, and solve problems* by identifying, empirically comparing, and choosing a set of coffee-ground and brewing variables to improve coffee quality;
2. *Understand diverse philosophies and cultures within and across societies* by studying similarities and differences in coffee production practices and beverage preferences in different areas around the world;
3. *Communicate effectively* through reflection papers, a documentary report, a team report on brewing experiments, and a video review of a local coffee place chosen by the student; and
4. *Understand the role of creativity, innovation, discovery, and expression across disciplines* by appreciating the process of coffee, from planted seed to cup.

REFERENCES

There is no required textbook for the course, but the following are useful references:

1. Hoffman, James (2018) *World Atlas of Coffee*. 2nd ed. Firefly Books, Buffalo, NY.
2. Ristenpart, William and Tonya Kuhl (2021) *The Design of Coffee: An Engineering Approach*. Ristenhart / Kuhl Publishing, Davis, CA.

GRADING

No exams will be given, and grades will be determined as follows:

Points	Class requirement	Due date
20	Weekly short quizzes	Weeks 2–11
10	Initial reflection paper: <i>Coffee and Me</i>	January 30
10	Review of Starbucks documentary	March 16
20	Team report on brewing experiments	April 17
15	Video review of a local coffee place	April 24
15	Final reflection paper: <i>What I Learned in AGRO 2021</i>	Final exam week
10	Class participation	
Total = 100		

The points-based grading scale is as follows:

A	93 to 100	C+	77 to 79	F	62 or less
A-	90 to 92	C	73 to 76		
B+	87 to 89	C-	70 to 72		
B	83 to 86	D+	67 to 69		
B-	80 to 82	D	63 to 66		

Extra credit opportunities to improve one's grade are unavailable.

Late work will result in a 10% penalty in points (e.g., maximum possible score of 9 instead of 10 for the reflection paper), unless a valid reason is given for missing a deadline.

CLASS POLICIES (see footnotes for links to official university policies)

Academic dishonesty of any kind or degree will not be tolerated¹. You are expected not only to exercise academic honesty, but also to strive for the higher standard of being beyond reproach.

Academic freedom is embraced in the course². This means you are free to reasonably disagree with what I teach and to reserve judgment about disputable matters, but you remain responsible for learning the course content.

AI tools (e.g., ChatGPT, HIX.AI, Google Bard, etc.) are not to be used in the course, except as an aid in crafting pitches to the panel of judges during the coffee competition.

Attendance in each class session is required. If you have a legitimate reason for an absence (e.g., illness, jury duty, family emergency, religious observances, etc.), please inform me prior to your absence (if possible) or as soon as possible thereafter³.

Class notes and materials are for your personal use only³. They are not to be sold to anyone or distributed to others who are not registered in the class.

Discrimination of any kind or degree will not be tolerated⁴. We respect and honor differences and provide **equal access**⁵ without regard to race, color, creed, religion, national origin, sex, gender, age, marital status, familial status, disability, public assistance status, membership or activity in a local commission created for the purpose of dealing with discrimination, veteran status, sexual orientation, gender identity, or gender expression.

Office hours are by appointment.

Personal electronic devices can hinder learning and are not to be used in class, unless I ask you otherwise³.

Sexual harassment of any kind or degree will not be tolerated⁶.

Student conduct is to be of the highest standard¹. You are expected to unconditionally treat others well. I commit to do the same.

Students with a documented disability should inform the Disability Resource Center to make any needed arrangements, and inform me within the first three weeks of the semester to ensure that disability accommodations can be made⁷.

Students struggling through mental health and stress issues must seek personal and professional help from multiple support systems—family, friends, University resources⁸, and counselors. Know that you are not alone.

¹ https://regents.umn.edu/sites/regents.umn.edu/files/2022-07/policy_student_conduct_code.pdf

² https://regents.umn.edu/sites/regents.umn.edu/files/2019-09/policy_academic_freedom_and_responsibility.pdf

³ <https://policy.umn.edu/education/studentresp>

⁴ <https://policy.umn.edu/hr/discrimination>

⁵ https://regents.umn.edu/sites/regents.umn.edu/files/2024-01/policy_diversity_equity_inclusion_and_equal_opportunity.pdf

⁶ https://regents.umn.edu/sites/regents.umn.edu/files/2020-08/policy_sexual_harassment_sexual_assault_stalking_and_relationship_violence.pdf

⁷ https://regents.umn.edu/sites/regents.umn.edu/files/2019-09/policy_disability_services.pdf

⁸ <http://www.mentalhealth.umn.edu>

AGRO 2101, Coffee Matters

Fall 2026 schedule

Week	Lecture	Laboratory
1	Syllabus and introduction	Tastes and cupping
2	Movement of the coffee beverage	Teamwork; total dissolved solids and pH
3	Movement of the coffee plant	Brewing methods
4	Coffee in the U.S.	African and South American coffee
5	Coffee species and varieties	Asian and Central American coffee
6	Coffee breeding	Arabica, Robusta, Liberica, Excelsa
7	Life cycle of a coffee plant	<i>Starbucks</i> documentary
8	Coffee production	Brew ratio and size of grinds
9	Coffee processing	Water temperature and length of steeping
10	Supply chain and certifications	Type of roast, type of water, and species
11	Q&A with a grower and a barista	Coffee ingredients
12	Climate change and coffee	Design session
13	Espresso beverages	Team competition
14	Coffee and health	Course wrap up