

### SPRING IS SPRINGIN'!

CAMPUS IS, ONCE AGAIN, IN FULL BLOOM! THE HAWKS HAVE RETURNED TO THEIR NEST ON ST. ELIZABETH'S CLOCKTOWER, THE AIR SMELLS DELICIOUS WITH FLOWERING CRABAPPLE TREES, AND THE SUN FEELS WARM ON YOUR SKIN. IT IS TRULY A BEAUTIFUL TIME OF YEAR!

THIS SEMESTER TEAM BIO HAD ANOTHER STRONG SHOWING DURING AWARD SEASON! MANY OF OUR FACULTY AND STAFF HAVE BEEN HONORED FOR THEIR HARD WORK AND DEDICATION AND WE ARE SO PROUD TO SHARE THEIR ACCOMPLISHMENTS IN THIS ISSUE.

THIS FRIDAY, APRIL 26TH, MARKS THE 13TH ANNUAL MSU DENVER UNDERGRADUATE RESEARCH CONFERENCE. THIS YEAR BIO MAJORS ACCOUNT FOR 29 PRESENTATIONS; THAT'S 30% OF THE TOTAL PRESENTATIONS BEING GIVEN THIS YEAR. WAY TO REPRESENT TEAM BIO!! BE SURE TO SWING BY TO SUPPORT OUR RESEARCH STUDENTS AT THE JORDAN STUDENT SUCCESS BUILDING FROM 9AM-4:45PM.

WITH ANOTHER COMMENCMENT ON THE HORIZON, IT FEELS BITTERSWEET TO SAY GOODBYE TO OUR GRADUATING SENIORS. SO MANY OF THEM HAVE ACCOMPLISHED SO MUCH IN THE FACE OF REAL CHALLENGE. CONGRATULATIONS TO THE CLASS OF 2024 - YOU DID IT! AND WE COULDN'T BE PROUDER! IT'S YOUR TIME TO FLY!!

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AFFILIATE FACULTY

HI Y'ALL! I'M KAILY, ORIGINALLY HAILING FROM COASTAL TEXAS. I OBTAINED MY BA FROM MSU DENVER AND PURSUED FURTHER STUDIES, CULMINATING IN AN MS IN ENVIRONMENTAL BIOLOGY FROM REGIS UNIVERSITY. MY PASSION LIES IN BIRD CONSERVATION, STRIVING TO PROVIDE INDIVIDUALS WITH THE KNOWLEDGE NECESSARY TO MAKE WELL-INFORMED DECISIONS ABOUT THEIR ENVIRONMENT.

DURING MY TIME AT MSU DENVER, I HAD THE OPPORTUNITY TO BE A TEACHING ASSISTANT IN ANIMAL BEHAVIOR AND LATER A LEARNING ASSISTANT IN ORNITHOLOGY. RETURNING TO MY ALMA MATER AS AN AFFILIATE FACULTY MEMBER FILLS ME WITH EXCITEMENT AND A SENSE OF HOMECOMING.

DURING MY FREE TIME, YOU'LL OFTEN FIND ME ENJOYING QUALITY TIME WITH MY HUSBAND AND OUR FUR BABIES, OR ENTHUSIASTICALLY PLANNING OUR NEXT INTERNATIONAL ADVENTURE.

# SHOUT OUT

BIO Hall of G.O.A.T.s



#### DENISE DAPHNE BIOLOGY ADVISOR

CLAS Award -Advisor of the Year





### DR. JONATHAN DYHR PROFESSOR IN BIOLOGY

CLAS Award -Dr. Ibon Izurieta Excellence in Service Award

Golich Award -Open Educational Resource Champion Award

THE BIO BUZZ



# SHOUT OUT

**BIO Hall of G.O.A.T.s** 



# DR. KRISTY DURAN DIRECTOR OF UNDERGRADUATE RESEARCH & PROFESSOR IN BIOLOGY

Roadrunners Who SOAR Award





Certified G.O.A.T. Status

# DR. JENNIFER GAGLIARDI-SEELEY DEPARTMENT CHAIR & PROFESSOR IN BIOLOGY

Roadrunner Shoutout Award February 2024





LEAH VITALE, BIO ALUMNA AND PREVIOUS RESEARCH STUDENT OF DR.
JENNIFER GAGLIARDI-SEELEY, WAS RECENTLY ACCEPTED INTO OKLAHOMA
STATE UNIVERSITY'S OKLAHOMA NETWORK-RESEARCH AND MENTORING POSTBACCAAUREATE (ON-RAMP) PROGRAM. THIS PROGRAM PROVIDES ONE YEAR OF
PAID FULL-TIME RESEARCH, MENTORING, AND TRAINING IN THE BIOLOGICAL
SCIENCES FOR RECENT COLLEGE GRADUATES. LEAH WILL BE WORKING IN DR.
BO ZHANG'S LAB WHERE SHE'LL WORK IN THE FIELD TO DETERMINE IF
POPULATIONS OR DISTRIBUTIONS OF FISH WITH DIFFERENT MOVEMENT
STRATEGIES WILL VARY IN A GRADIENT OF CONTAMINATION AND RESOURCE.

"WILDLIFE BIOLOGY IS SUCH A COMPETITIVE FIELD AND YOU MUST WORK A LOT OF SEASONAL AND TEMP JOBS JUST TO GET YOUR FOOT IN THE DOOR. SO I FEEL VERY LUCKY TO HAVE GOTTEN A YEAR-LONG POSITION FOR MY FIRST JOB. I CAN'T WAIT TO SEE HOW MANY OTHER DOORS OPEN UP FOR ME IN A YEARS' TIME."

~LEAH VITALE

# Congratulations

LIDET IMMIGRATED FROM ETHIOPIA AND
WAS RAISED BY HER SINGLE MOTHER ALONG
WITH HER THREE SIBLINGS. LIDET WORKED
WITH AN AFRICAN RESETTLEMENT
COMMUNITY TO HELP REFUGEES WHILE SHE
WAS A STUDENT AT MSU DENVER.

ALTHOUGH SOME PEOPLE IN LIDET'S
ETHIOPIAN COMMUNITY CHURCH TOLD HER
THAT BECAUSE SHE IS A WOMAN SHE COULD
NOT BE A DENTIST...SHE CURRENTLY HAS A
4.0 GPA, IS A PATTON SCHOLAR, A BIO 1090
TUTOR, AND A WORK-STUDY STUDENT
SETTING UP BIO 1090 LABS. LIDET HAS
RECEIVED ACCEPTANCE LETTERS FROM ALL
THE DENTAL SCHOOLS SHE APPLIED TO
DURING HER JUNIOR YEAR!

LIDET CAME IN AS A VERY SHY STUDENT
THAT HAD TO OVERCOME IMPOSTER
SYNDROME, BUT UNDER DR. ARIJANA
BARUN'S GUIDANCE, HAS WORKED VERY
HARD THROUGHOUT HER YEARS AT MSU
DENVER AND HAS FINALLY REALIZED THE
IMPORTANT ROLE SHE PLAYS IN HELPING
OTHER BIOLOGY STUDENTS.
CONGRATULATIONS, LIDET!



## LIDET REDA

SPRING 2024 CLAS BIOLOGY GRADUATE HONOREE

# Congratulations



SPRING 2024 CLAS BIOLOGY GRADUATE NOMINEE



ELINA WAS BORN AND RAISED IN JAPAN AND MOVED HERE 4 YEARS AGO.

ON TOP OF BIG CULTURAL DIFFERENCES, THE LANGUAGE BARRIER WAS ONE OF THE HARDEST OBSTACLES TO OVERCOME ON THE ROAD TO ACHIEVING A GPA OF 3.93 AND COMPETING WITH OTHER PRE-MEDICAL STUDENTS.

ANOTHER LIFE OBSTACLE FOR ELINA WAS BEING A MEMBER OF THE LGBTQ+ COMMUNITY; IN JAPAN THEY DO NOT ACCEPT LGBTQ+ AND OFTEN CHIP AWAY AT YOUNG LGBTQ+ MEMBER'S CONFIDENCE. ELINA LEARNED HOW TO FIGHT FOR HERSELF, NEVER GAVE UP ON MAKING HER DREAM COME TRUE, AND PROVED THAT IF YOU PUT ALL YOUR EFFORT IN, ANYTHING IS POSSIBLE.

ELINA HAS BEEN DR. HAY'S LA FOR A&P I AND II LABS FOR THE PAST 2 SEMESTERS. SHE IS ALWAYS WELL-PREPARED AND ANTICIPATES DR. HAY'S EVERY MOVE. HER DISSECTIONS FOR DEMONSTRATIONS ARE PRISTINE AND SHE ACCURATELY ASSISTS THE STUDENTS WITH THEIR OWN DISSECTIONS. HER INTERACTIONS WITH STUDENTS IN LAB ARE ALWAYS FILLED WITH INCLUSIVITY, ENCOURAGEMENT, AND WARMTH, ELINA IS ALSO AN HONOR'S STUDENT, AND HER THESIS IS ON AN ENDOCRINOLOGY PROJECT ABOUT THE THYROID HORMONE. SHE IS GRADUATING IN MAY WITH A BS IN BIOLOGY AND A MINOR IN CHEMISTRY AND IS APPLYING TO MEDICAL SCHOOL OVER THE SUMMER. ELINA HAS THE INTELLIGENCE AND SCIENTIFIC CURIOSITY TO BE A LIFELONG LEARNER AND CONTRIBUTE GREAT THINGS TO SCIENCE AND SOCIETY.





Cracking the Code: Using Educational Gaming for High-Level Thinking In Physiology Education

Authors: Joel Roberts, Lise A. Johnson, and Jonathan P. Dyhr

Journal Name: Advances in Physiology Education

https://journals.physiology.org/doi/full/10.1152/advan.00154.2023

The multidisciplinary nature of physiology requires students to acquire, retain, apply, and evaluate knowledge from different scientific disciplines. Optimal learning techniques, such as active learning, interleaving topics and conditions, and recall, can greatly enhance the speed and effectiveness with which students achieve this type of higher-order thinking. However, developing and implementing optimal learning techniques in the classroom can be both time-intensive and challenging for the instructor. In addition, students may be resistant or slow to accept novel learning processes. One way to potentially introduce these learning techniques in a fun and engaging way is through educational gaming, or using a game or game elements intentionally to support learning. In this article we present an easy-to-implement adaptation of the Codenames board game for the physiology classroom. The activity requires minimal preparation while addressing high-level learning outcomes. Results suggest that participating in the activity both actively engaged the students and pushed them toward high-level, integrative thinking regardless of class level.



## Team BIO

# OUT in's

Dr. Kristy Duran was invited to speak at a couple of conferences this spring. One hosted on March 30th by the San Luis Valley Seed Exchange where she gave a talk titled "Plants and Ethnobotany of the San Luis Valley", a topic she knows intimately as a sixth generation native of the valley.

On April 6th, Broomfield High School hosted their Women's Leadership Conference where Dr. Duran was one of the speakers. Her talk was titled "Unmasking Imposter Syndrom: Understanding and Overcoming Self-Doubt in the Workplace".





## **BIO 39AC: TROPICAL FIELD BIOLOGY**



TWENTY MSU DENVER STUDENTS TRAVELED WITH DR. GAGLIARDI- SEELEY AND DR. CARELLO TO COSTA RICA IN JANUARY 2024 FOR A TROPICAL FIELD BIOLOGY COURSE. THEY TRAVERSED THE COUNTRY FROM CARIBBEAN COAST TO THE PACIFIC EXPERIENCING LOW-LAND AND UP-LAND TROPICAL RAINFORESTS, CLOUD FORESTS, TROPICAL DRY FORESTS, AND PACIFIC CORAL REEFS.

HIGHLIGHTS INCLUDED SEEING BOTH TWO-TOED AND THREE-TOED SLOTHS, MIST-NETTING BOTH BIRDS AND BATS, AND LEARNING ABOUT SUSTAINABLE TOURISM AND AGRICULTURE. THROUGHOUT THE TRIP, THEY GOT TO EXPERIENCE THE LOCAL CUISINE WITH HOME-COOKED MEALS, WORKED WITH CONSERVATIONISTS, AND LEARNED SO MUCH ABOUT THE PEOPLE AND THE ECOSYSTEMS OF COSTA RICA.

INFORMATION ON THE NEXT COURSE (JANUARY 2026) WILL BE AVAILABLE DURING SPRING SEMESTER 2025. ¡PURA VIDA!



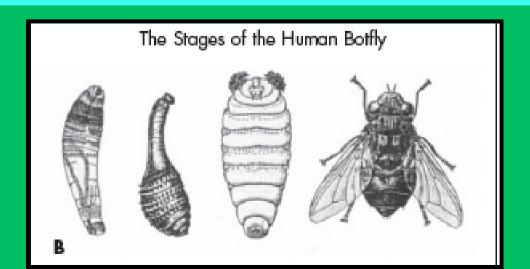


AFTER ANOTHER SUCCESSFUL CLASS TRIP TO COSTA RICA CONCLUDED, DR. GAGLIARDI-SEELEY RETURNED HOME TO DISCOVER THAT SHE'D BROUGHT A FRIEND BACK WITH HER! YEP...A HUMAN BOTFLY!

FOR THE LONGEST TIME, SHE COULDN'T FIGURE OUT WHY HER FOOT HURT. AFTER VISITING A FEW DOCTORS, NOTHING CAME BACK CONCLUSIVE...THAT IS UNTIL SHE TOOK MATTERS INTO HER OWN HANDS! AFTER SQUEEZING THE OPENING WHERE ONE OF THE DOCS HAD PREVIOUSLY GONE LOOKING, OUT CAME A DEAD BOTFLY LARVA! HUZZAH!

WELL, AS ANY SELF-RESPECTING BIOLOGIST WOULD DO, SHE RECRUITED A COLLEAGUE (PROFESSOR GIASOLLI) TO GET A CLOSE UP SHOT WITH A MICROSCOPE. TAKE A LOOK AT THAT! OUCHIE!

#### **NEVER A DULL MOMENT IN BIO TOWN FOLKS!**





COMING

13<sup>th</sup> Annual



# UNDERGRADUATE RESEARCH CONFERENCE

https://bit.ly/3 W625v

A Symposium of Scholarly Works & Creative Projects

April 26<sup>th</sup>, 2024 8:30am- 4:45pm

Jordan Student Success Building



Keynote Speaker

### **GREGG DEAL**

"Art is Medicine: Contemporary Art through Indigenous Eyes"

12:15pm in the Tivoli Turnhalle

Questions? Contact: undergradresearch@msudenver.edu



UNDERGRADUATE RESEARCH & CREATIVE SCHOLARSHIP PROGRAM



ORAL PRESENTATIONS - 9:00AM-10:30AM JSSB - ROOM 200

	NOOM LOO	
<u>NAME</u>	<u>title</u>	<u>MENTOR</u>
HADDEL DAHABREH	PRELIMINARY FINDINGS ON SABETHES TREE-HOLE DWELLING LARVAE AND THEIR CRYPTOBIOTIC BEHAVIORS	HANCOCK
LAURA FARNSWORTH & DREW BENDER	UNDERSTANDING NORTHERN SHOVELER FEEDING BEHAVIOR AND ITS IMPLICATIONS FOR WATERFOWL CONSERVATION IN THE DENVER METRO AREA	CARELLO
ELEANOR MANCILLA	VARIATION OF LACTATE DEHYDROGENASE WITH RELATION TO THE HEAT SHOCK RESPONSE OF ONCORHYNCUS CLARKII STOMIAS	PETCOFF
CHRISTOHPER WICKER	THE INFLUENCE OF OPERATIONAL SEX RATIO ON PAIR-BOND FORMATION AND MATING BEHAVIOR IN THE CONVICT CICHLID (AMATITLANIA NIGROFASCIATA)	GAGLIARDI- SEELEY
		<u>.</u>
	COME SUPPORT OUR BIO MAJORS!	

POSTER PRESENTATIONS - 10:30AM-NOON JSSB MEZZANINE

JOSE MILLEANINE				
<u>NAME</u>	<u>TITLE</u>	<u>MENTOR</u>		
BRITTANY BROWN & MAGEE HEADLEY	THE EFFECT OF EMERALD ASH BORER ON AMBIENT AND GROUND TEMPERATURES	BISSELL & GAGLIARDI- SEELEY		
KATHERINE CAMBIER	FOOD SOURCE AVAILABILITY AS AN INFLUENCE FOR WINTER FORAGING SITE SELECTION IN NORTHERN SHOVELERS	CARELLO		
NICOLETTE COUTURE	DEVELOPMENT AND TESTING OF AN UNDERWATER CAMERA SYSTEM TO MEASURE THE HEALTH OF CORALS BY RECORDING FLUORESCENCE FROM ALGAL CORAL SYMBIONTS	HANCOCK		
FROST GORDON	GENERATION OF A HERITABLE LOSS OF FUNCTION MUTATION IN THE NDNF GENE	MELVIN		
MARIA GREEN & BROOKE PASLAY	ADVANCEMENTS IN THE QUEST TO IDENTIFY A CORAL GENE SEQUENCE	CATTELL		
KRISTEN GUSTAFSON, SARAH BROADWELL & THOMAS CHANDLER	FLIGHT (PATTERNS) OF THE BUMBLEBEE: EFFECTS OF COLOR AND MOTION	DYHR		
ZAINAB HUSSAIN & AMY NASH	DISTINGUISHING BETWEEN TOP-DOWN AND BOTTUM-UP EFFECTS OF INVASIVE CRAYFISH ON COMMUNITY STRUCTURE USING STABLE ISOTOPE ANALYSIS	KOLTS		
JESSICA LEE	EXPRESSION PATTERN OF THE NDNF GENE IN ZEBRAFISH CRANIOFACIAL DEVELOPMENT	MELVIN		

POSTER PRESENTATIONS - 10:30AM-NOON JSSB MEZZANINE

<u>NAME</u>	TITLE	<u>MENTOR</u>
VICTORIA MAKKIYA	THE INFLUENCE OF THE GUT MICROBIOME ON MENTAL DISORDERS	GIASOLLI
DOMINIQUE MALOTT & TAGWA ALSANOUSI	OPTIMIZATION OF BACILLUS CALMETTE-GUERIN AND RAW 264.7 CELLS	MERRIAM
PEYTON MINNER	GENE EXPRESSION OF THE CANCER REGULATOR, MACC1	MELVIN
SKYLAR NICHOLLS	CYTOSINE METHYLATION OF CHERRY CREEK FRESHWATER ALGA	HAEFELE
KYLE RALPHS	RECORDING THE REEF ON A BUDGET: UTILIZATION OF UNDERWATER PHOTOGRAMMETRY IN CORAL MONITORING AND CONSERVATION	HANCOCK
DREW STEINHEIMER	OF MOSS AND MEN	BISSELL
NICOLE ROBBINS	POST-EMERGENCE SUGAR DEPRIVATION INCREASES ATTACK AND ENGORGEMENT PERFORMANCE BY MATED AEDES AEGYPTI MOSQUITOS IN THE LABORATORY	HANCOCK

THE BIO BUZZ

POSTER PRESENTATIONS - 2PM-3:20PM JSSB MEZZANINE

JOSE INCLUMENTAL		
<u>NAME</u>	TITLE	<u>MENTOR</u>
BRITTANY BROWN & RIMLEY BAUER	FEEDING INNOVATION IN THE BARE-THROATED TIGER-HERON (TIGRISOMA MEXICANUM)	CARELLO
BROOKE PASLAY & BRIANNA WINKLER	SEQUENCING THE GFP GENE IN ACROPORA MILLEPORA	CATTELL
KYRA ZERUCHA & CLAUDIA VASQUEZ	IMPLEMENTING MUSEUM-INSPIRED STRUCTURE AMONG MSU DENVER'S SCIENTIFIC ENTOMOLOGY COLLECTION: A FOCUS ON SELECTED NATIVE BEE TAXA	HANCOCK
CHARLOTTE CAMPBELL	BIOCHEMICAL CHARACTERIZATION OF ESCHERICHIA COLI BACTERIA FROM CANADA GEESE (BRANTA CANADENSIS)	FERRELL
VICTORIA MITCHELL & DANIELLE SCHUCKER	HUMAN-ELK INTERACTIONS ON AN AGRESSION SCALE	GAGLIARDI- SEELEY
REECE BAILY	FUNGUS SONUS: DEVELOPMENT OF SOUND ABSORBING MYCELIUM-BASED COMPOSITES USING P. OSTREATUS GROWN ON VARIOUS LIGNOCELLULOSIC SUBSTRATES	RAO, LAZORSKI & FILBIN
RAELYN BEGAY & ERIC REEVE	INVESTIGATING THE DEVELOPMENTAL ROLE OF MACC1 IN ZEBRAFISH	MELVIN

POSTER PRESENTATIONS - 3:30PM-4:45PM JSSB MEZZANINE

<u>NAME</u>	TITLE	<u>MENTOR</u>
ISOBELLA VEITCH	ASSESSING SEXUAL DIMORPHISM IN AMYGDALA CONNECTIVITY	QUILLINAN & VIGIL
CAROLINE SUEPER	BIO ART AS A CATALYST FOR THE HUMAN- MICROBE CONNECTION	VER EECKE
LILLIE FAITH GEIERSBACH	SYNTHESIS AND CHARACTERIZATION OF NOVEL SARS-COV-2 DERIVED CELL-PENETRATING PEPTIDES FOR ENHANCED DRUG DELIVERY	AMBRE

## LOOKING AHEAD...

EVENTS, ANNOUNCEMENTS, AND SUNDRY

# Patton Scholars Program Scholarship

#### About the Scholarship

The Patton Scholars program, supported by the James A.
Patton ('84) Fund was developed to support students of
color in the sciences. Through this program, we provide opportunities to hire
students as teaching and/or instructional assistants in the Department of Biology
or the Department of Chemistry & Biochemistry

#### Requirements

- Biology, Chemistry, or Biochemistry Major
- Interest in taking on Leadership/Mentorship Role
- Previous coursework in Biology and/or Chemistry

#### Scholarship Award Amount

Up to \$3000 per semester as TA, Plus up to \$3000 per semester living stipend

#### **Scholarship Commitments**

- To serve as a teaching or instructional assistant for assigned course(s)
- To support activities throughout the duration of the program's support
- Voluntary Evaluations (Questions and Interviews)
  Impact of Program on Personal, Academic, and
  Professional Development

#### **Application Deadline**

Friday, April 26, 2024

#### Application Link and QR Code for Scholarship

https://tinyurl.com/pattonscholarship









### APPLY NOW!

## **Engaging with the World**











## Grants for Study, Research, or Teaching Assistantships Abroad

FOR MORE INFORMATION, CONTACT:

Dr. Akbarali Thobhani: thobhana@msudenver.edu Compus Fulbright Program Adviser

Friday, September 6th at 12:00 p.m. MDT

Compus Deadline Date

Those not enrolled in a college or university may visit our website at us fulbrightonline.org. The Fulbright U.S. Student Program offers unparalleled opportunities in all academic disciplines to passionate and accomplished graduating college seniors, graduate students, and young professionals from all backgrounds. Through the Fulbright U.S. Student Program, U.S. citizens can enrich their educations, advance their careers—and make meaningful contributions abroad and at home.

us.fulbrightonline.org

# coming summer 20241



WOULD YOU LIKE TO FROLIC IN THE FOOTHILLS THIS SUMMER?

(WHO DOESN'T?)

DO YOU DIG PLANTS?

> (I'M CRAZY FOR PLANTS!)

DO YOU WANT TO SPEND TIME OUTDOORS AND LEARN ABOUT PLANT SAMPLING AT THE SAME TIME?!

(DUH!)

## **COMING SUMMER 2024!**

#### **BIO 4560: FIELD METHODS IN PLANT ECOLOGY**

VISIT GRASSLAND, RIPARIAN, AND FOOTHILL LOCATIONS IN THE DENVER METRO REGION TO LEARN FIELD SAMPLING TECHNIQUES, DATA ANALYSIS,

FOR MORE INFO CONTACT:

DR. ERIN BISSELL EBISSELL@ MSUDENVER.EDU

DR. CHRISTOPHER MELOCHE

> CMELOCHE@ MSUDENVER.EDU





#### SUMMER SESSION DATES & TIMES

CREDITS JUNE 3-7 - M/W/F - ON CAMPUS LECTURE - SI 3008 -9AM-1PM JUNE 10-28 - M/W/F - MEET AT FIELD SITES - 7AM-1PM JULY 1-8 - M/W/M - ON CAMPUS LECTURE - SI 3008 -9AM-1PM (NO CLASS ON JULY 5)

FOR A BOTANICAL GOOD TIME, REGISTER NOW!



## COMING FALL 2024!







FOR MORE INFORMATION CONTACT DR. CINDY CHURCH CHURCHY@MSUDENVER.EDU



## COMING FALL 2024!



Rice was domesticated on three different continents!

## Economic Botany BIO 3120

4 Upper Div. credits Fall 2024

Every cup of coffee has its origins in Ethiopia and Kenya

Do you have a favorite flower or a favorite fruit? Do you know where the plant that bears it came from or how people learned to use it?



This course investigates the origins of plant we use for food, fiber, chemicals, and medicines. We'll look at why plants are so important to our lives, what they make and how we process them for use.

#### cmeloche@msudenver.edu

Prerequisite: BIO 2100 or permission of instructor

This class brings plants and people together. I'm very open to non-biology students in this class and it is a good fit for social science students.



