

What's Inside

Department of Biological Sciences & Pre-Health Professions Programs

2021 to 2022,
Issue 4

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Chairperson's Corner (Dr. Joyce Ache Gana)



Welcome to a new academic year. We are thankful for the opportunity to resume face to face classes this fall. Last year, we adapted to new ways of conducting business because of the lockdown imposed by the COVID19 pandemic. Remote instruction has its strengths and weaknesses. While it offers fantastic flexibility, it lacks the physical social interactions that contributes to enhancing student learning, especially in STEM related fields. We will continue to use remote tools whenever appropriate.

We revised the biology curriculum, adding three new courses: BIOL 1701, BIOL1702, and BIOL 2400 to the list of core courses and making ZOOLOGY 2040 and BOT 2050 as BIOL 2000 level electives. Only new students starting this Fall 2021 onward will follow this new curriculum. Returning students will follow the curriculum of the catalog year they

first enrolled at CSU.

The department graduated eight students with B.S. and one M.S. this past academic year (page 2).

The department's Biological Society is an active student run club. Last year the Biological Society organized many fun activities (page 3). We encourage all students to become a part of this club to increase your co-curricular skillsets such as leadership and community development. Visit the departments' website news and events site to learn of student leaders (<https://www.csu.edu/bioprehealth/news.htm>).

The department is a safe and inclusive space for all. We pride ourselves in creating a positive learning and working environment to bring out our best versions. Stop by the department office @ SCI 310 to chat with us about anything.

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Announcements

Graduation application deadline is **October 29, 2021**

Apply to Scheinbuchs Scholarship. The deadline is **October 01, 2021** at 4:00 pm. The requirements are a minimum cumulative grade point average of 3.0, completed one full semester at CSU, participant in university activities, and have not received the award more than once. For additional information, please contact Dr. Andrew Maselli, amaselli@csu.edu for further information.

Apply for paid research opportunities as an LSAMP Scholar (<https://www.csu.edu/LSAMP/scholars.htm>). Contact Dr. Christopher Botanga, cbotanga@csu.edu.

- ◆ Follow the department on social media : Twitter (@ChicagoStateBio), Instagram (chicagostatebio)



Awards

Dr. Julian Scheinbuks Scholarship



Dr. Julian Scheinbuks was a part of the Department of Biological Sciences faculty at CSU from 1989-2003. His great love was teaching and working with students. He taught various biology courses for 13 years. In 2003, he was appointed the Director of Distance Learning. Under his leadership, a small and developing operation was transformed into a successful department within the Library and Instruction Services. Upon Dr. Scheinbuks passing, he donated \$1 million dollars towards student scholarships for the department. As a memorial to Julian, the campus community has planted a native burr oak tree. A leaf from that tree is the symbol of the Scholars program. Every year, the department gives scholarships to students through

an application process, applicants are awarded based on academics and service.

Scheinbuks Scholarship Recipients 2020-2021

(Undergraduates \$2000 each)

- Alayjah Harshaw.
- Andriana Malone (winner 2018)
- Nicholas Moody
- Shalomeck Johnson

Graduate Students:

- Asraf Ali (Repeat Winner)
- Sagar Patel.

New Student Book Scholarship 2020 (\$500 each)

- Cassidy Brown
- Quiana Smith
- Adaeze Olikagu

Congratulations 2020 to 2021 Graduates

December 2019

Toko Nzilani

May 2020

- Clarke Griffith
- Jada Jordan
- Jasmine Jordan
- Nicholas Moody
- Shuaib Wajeaha
- Damian Gonzalez

Summer 2020

Akilah Davis

Whereabouts of class of 2020-2021

TOKO Nzilani began an accelerated Masters of Nursing Program at Marquette University, Milwaukee, WI Spring 2021

Jada Jordan began the Masters of Health Sciences Program at Meharry Medical College, Nashville, TN Fall 2021

Nicholas Moody began the Masters of Biological Sciences Program at Chicago State University Fall 2021

Akilah Davis began the Masters of Biological Sciences Program at Chicago State University Fall 2021

BIOLOGICAL SOCIETY Co-Curricular Activities Earth Week Celebrations



Student leaders Korvell Russell and Adaeze Olikagu ran the CSU greenhouse-grown plant sale. Students start building entrepreneurial skills from such activity.



BIOLOGICAL SOCIETY Co-Curricular Activities



Darcae Holmes, student club president for two consecutive years is seen here promoting the biological society.



Bird watching at the Montrose Park. One of the benefits of joining the Biological Society is opportunity for students to translate biology concepts to practical application such as appreciating biodiversity in the local community.



Students and Dr. Molly McDonough (Faculty Advisor to student club) practice identifying greenhouse grown plant from familiar scents of home-based products

What plant is this?

Visit the greenhouse to test your knowledge

OR

Just get a ZEN moment



Students and Dr. Molly McDonough practice identifying vegetables

BIOLOGICAL SOCIETY Co-Curricular Activities Volunteer Opportunities



Arbor day planting coordinated by Dr. Karel Jacobs with student participation.

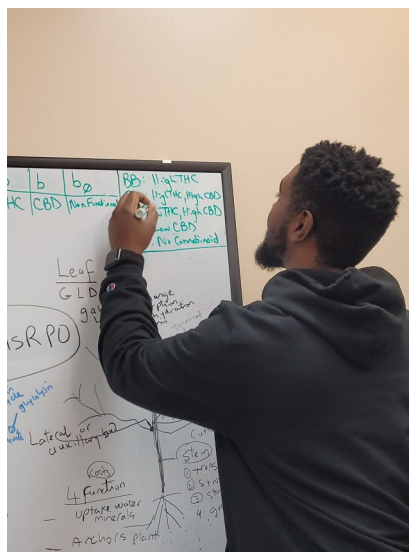
Learn about the importance of trees native to this area



Volunteer at the green house and earn a free plant.



Practice biology knowledge by doing...read, observe, compare, describe, illustrate, narrate! Just enjoy the process



Do you get biology concepts easily? Help your classmates with peer to peer explaining and strengthen your own knowledge or skillsets in the process.



Graduate Student Corner

Graduate Proposal defenses

Muriel McClendon: Deposition of DNA origami on chemically modified silicon substrate surface.

Thesis Advisor; Dr. Valeri Goss. Thesis Committee: Joyce Ache Gana, Andrew Maselli, Kristy Mardis (Ad hoc)

Stephen Philpott: Cannabinoid and terpene variation in *Cannabis L.* clones grown under far-red (730nm), UVA (385nm), and full-spectrum light (380-740nm).

Thesis Advisor: Dr. Rob Richter: Thesis Committee: Mark Erhart, Devi Potluri, Joyce Ache Gana, Jason Nelson (Cresco Labs)

Graduate Progress report Seminar

Chanel Norphlet: Examining interactions with mutant G93A superoxide dismutase and ubiquitin-2

Thesis Advisor: Dr. Anser Azim: Thesis Committee: Andrew Maselli, Kevin Swier

Graduate Masters Thesis Defense

Damian Gonzalez: Beyond Morphology: incorporating allometry, coexistence, and resource partitioning of three Atlantic rodent species. Spring 2021

Thesis Advisor: Dr. Noe' de la Sancha: Thesis Committee: Molly McDonough, Kevin Swier

Uzoma Emeakoroha: Starch granule bound phosphate pattern in roots of field-grown mature defoliated *Medicago sativa* plants: implication of phosphatase activity. Summer 2021

Thesis Advisor: Dr. Joyce Ache Gana: Thesis Committee: Noe de la Sancha Andrew Maselli



FACULTY AND STAFF CORNER

Retirements

Dr. Rong Lucy He retired in August of 2021 after serving 12 years as a tenured faculty. During her time in the department Dr. He mentored more than a dozen undergraduate and graduate students in research most of whom went on to earned PhD, MD-PhD, and significant career advancements. We wish Dr. He the very best in retirement.

Dr. Chao Yu retired in August of 2021 after serving 26 years as a Full Time Temp faculty. During his long illustrious career in the department, Dr. Yu taught Human Functional Anatomy and Cadaver Lab to hundreds of students many who went on to earn degrees in nursing and occupational therapy. We wish Dr. Yu the very best in retirement.

Mrs. LaShawna Anderson resigned from the University in April 2021. She served as a professional advisor in the department for four years. We wish Mrs. Anderson the very best in her future career endeavors.

Ms. Denis Patrick served as Aquaponics Specialists for 10 years until the facility was shut down in 2020. Prior to that role, Ms. Patrick served as research technician to many faculty labs in the department. We wish Ms. Patrick the very best in her future professional career.

Appointments

Dr. Yukto Tsang was appointed as adjunct Faculty to teach the Cadaver Lab in the Fall of 2021.



FACULTY ACCOMPLISHMENTS

Publications:

McDonough, M. M., Ferguson, A. W., Dowler, R. C., Gompper, M., & Maldonado, J. (2021). Phylogenomic systematics of the spotted skunks (Carnivora, Mephitidae, Spilogale): Additional species diversity and Pleistocene climate change as a major driver of diversification. *Molecular Phylogenetics and Evolution*. In Press.

Botanga C. (2021). Targeted designing functional markers revealed the role of retrotransposon derived miRNAs as mobile epigenetic regulators in adaptation responses of pistachio.

Weems, E.I., **N.U. de la Sancha**, L.J. Anderson, C. Zambrana-Torrel, R.P. Ferraris. (2021) Centering microbes in the emerging role of integrative biology in understanding environmental change. *Integrative and Comparative Biology* <https://doi.org/10.1093/icb/icab047>.

de la Sancha, N.U., S.A. Boyle, N.E. McIntyre. 2021. Identifying structural connectivity priorities in eastern Paraguay's fragmented Atlantic Forest. *Scientific Reports*. 11, 16129 DOI: [10.1038/s41598-021-95516-3](https://doi.org/10.1038/s41598-021-95516-3).

de la Sancha, N.U., S.A. Boyle, N.E. McIntyre, D.M. Brooks, A. Yanosky, E. Cuellar Soto, F. Mereles, M. Camino, R.D. Stevens. 2021. The disappearing Dry Chaco, one of the last dry forest systems on earth. *Landscape Ecology*. **36**, 2997–3012 <https://doi.org/10.1007/s10980-021-01291-x>

Onditi, K.O., T.C. Demos, J. Kerbis Peterhans, Z.Z. Chen, J. Bryja, L.A. Lavrenchenko, S. Musila, E. Verheyen, F. Van de Perre, B. Dudu Akaibe, **N.U. de la Sancha** and X.L. Jiang. (2021). Historical biogeography, systematics, and integrative taxonomy of the non-Ethiopian speckled pelage brush-furred rats (*Lophuromys flavopunctatus* group). *BMC Ecol Evo* 21, 89. <https://doi.org/10.1186/s12862-021-01813-w>.

Boyle, S. A., **N.U. de la Sancha**, P.E. Pérez, and D. Kabelik. 2021. Small mammal glucocorticoid concentrations vary with forest fragment size, trap type, and mammal taxa in the Interior Atlantic Forest. *Scientific Reports* 11:2111. DOI: [10.1038/s41598-021-81073-2](https://doi.org/10.1038/s41598-021-81073-2).

Gonzalez, D. Beyond morphology: incorporating allometry, coexistence, and resource partitioning of three Atlantic Forest rodent species. MS. Thesis. May 2021. (Advisor **N.U. de la Sancha**).

Presentations (Invited talks, Invited Panel Discussions, Research, Teaching, Workshops)

Dommain, R., Andama, M., **McDonough, M. M.**, Prado, N. A., Goldhammer, T., Potts, R., Maldonado, J. E., Nkurunungi, J. B., and Campana, M. G.: Biodiversity and DNA degradation patterns recorded in a 2200-year-long sequence of sedimentary ancient DNA from the afro-tropical Bwindi Impenetrable Forest, Uganda. European Geosciences Union General Assembly 2021, online, 19-30 Apr 2021, EGU21-1700, <https://doi.org/10.5194/egusphere-egu21-1700>, 2021.

Holmes, D. and **McDonough, M. M.** Mutation for toxin resistance is unique to Mackinder's eagle owl, *Bubo capensis*, among birds. *ILSAMP Spring Symposium, online, 26-27 February 2021*.

de la Sancha, NU. Death by Chocolate. Field Encounters - Earth Day. Field Museum of Natural History. April 20, 2021. online.

Gana J.A. Invited Talk. (May 28th, 2021). Association of Women in Science (AWIS) University of California Riverside Mentorship Program. Keynote speech by ZOOM.

Grants submitted and Grants Awarded

PI Miller, Nicholas, Co-PIs **McDonough, M. M.** and Schirmer, A. "RCN-UBE Incubator: StRoNG Net: STEM Research on Non-model Genomes". NSF 18-510. Submitted 29 January 2021. \$75,000. *Recommended for funding*.

Botanga C. July 19th, 2021. Received \$215,442 NSF Grant Award to host a national conference, the 2021 Louis Stokes Alliances for Minority Participation (LSAMP) Principal Investigators/Project Directors Meeting (October 1-2, 2021).

Other Accomplishments:

Biological Society Organization of Earth Week events: Faculty Advisor: Dr. Molly McDonough.

Invited Speaker (Dr. Nigel Pitman) Virtual Seminar on Biodiversity in Chicago area

Campus Plant Sale from CSU greenhouse grown plants.

Arbor Day Tree Planting celebration: Coordinated by Dr. Karel Jacobs

Testimonials



ERIC MADU, Second Year Medical Student, Meharry Medical College. **BS 2017 December Chicago State University Biological Sciences.**

After moving from Nigeria in 2013, I started my career journey at Chicago State University in the department of Biological Sciences. At CSU, I interacted with intellectual students and faculty who aim to see that students achieve greater academic heights. I am extremely grateful for the warm welcome, academic training, scholarship awards, and STEM research trips I received in the department of Biological Sciences at CSU. As a current medical student at Meharry Medical College, I attribute my success, in part, to the highly

qualified faculty in this department who prepared me to excel beyond Chicago State University. The integrated and well-rounded curriculum with courses including immunology, genetics, and biochemistry prepared me for medical school. As a future scientist and physician, I'll hope to use my research skills acquired from CSU to advance scientific research. To all current and incoming students, The Faculty at CSU believes in your future and ready to prepare you towards it. I am a proud alumni of CSU.

To my forever mentor Dr. Ache Joyce Gana who believed in me, I am eternally grateful.



Chiamaka Uche, Third Year Medical Student, The Ohio State University College of Medicine. **BS 2018 Chicago State University Biological Sciences.**

Chicago State University molded the course of my medical career for many reasons. The biology department really took me under their wings and helped prepare me for medical school. I was able to get hands on one on one learning from my professors and I was also able to get research that made me stand out tremendously during my medical school interviews. Dr. Erhart especially took me on as his research student and we worked hard to locate the genetic mutations of mice within his lab. This was actually one of the major talking points during my interview, and my interviewer was so

intrigued and impressed by the work I did in Dr. Erhart's lab. I am thankful for all of the professors that encouraged me to pursue medicine. Dr. Gana was the one who told me to apply to The Ohio State University College of Medicine and though I was reluctant because I didn't know anything about Ohio, I am so happy I listened because I am now completing my 3rd year of medical school here and I couldn't imagine being anywhere else. Chicago State not only gave me the knowledge and tools to prepare me for medical school but also the confidence to know that this school on the South Side of Chicago, successfully produces future Physicians!