

SAMUEL ANNAN

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EDUCATION

Caldwell University, Caldwell, NJ
Major: BA in Biology

Expected Graduation: December 2023

GPA: 3.97/4.00

AWARDS & GRANTS

Dean's List

Caldwell University, Caldwell NJ 2020-Present

Presidential Scholarship

Caldwell University, Caldwell NJ 2020-Present

RELEVANT SKILLS:

Organic Chemistry: Reflux reaction set-up, hot gravity filtration, vacuum filtration, rotary evaporation, melting point determination, extraction, thin-layer & column chromatography, Mass Spectrometry interpretation, Infrared spectrometry interpretation, Ultraviolet-visible spectroscopy, Nuclear Magnetic Resonance analysis, simple & fractional distillation, liquid-liquid separation, recrystallization, sonication, microwave reaction.

Cell/molecular biology: centrifugation, DNA extraction, restriction analysis, agarose gel electrophoresis, cell culturing, cell counting, media preparation, extraction, polymerase chain reaction, microscopy, incubation

RESEARCH ACTIVITIES

Independent Undergraduate Student Researcher

Caldwell University, Caldwell NJ

Spring 2022- Present

Mentor: Dr Xiaolei Gao

Project Title: A Novel Synthesis for Aflatoxin Core, a Potent Liver Damaging Chemical

- Successfully synthesized the core structure of Aflatoxin B from simple commercially available starting materials
- Discovered that α , β -unsaturated ketoesters could undergo effective Lewis acid-catalyzed conjugate addition with aniline or phenol substrates and subsequent intramolecular cyclization and oxidation by air gives rise to tricyclic products in one step.
- The synthesis of core structure of Aflatoxin G and the scope of the Lewis acid-catalyzed conjugate addition to form the tricyclic system are undergoing
- Experimenting with various synthesis reactions using natural products
- Total hours: 45+

Student Research Assistant

Caldwell University, Caldwell NJ

Spring 2020- Present

Mentor: Dr Agnes Berki

Project Title: Effects of Natural Products on Cancer Cells

- Evaluated the effects of nettle tea leaf on colorectal cancer cell line
- Evaluated the effects of blueberries on breast cancer cell line
- Evaluate the effects of Holy basil on colorectal cancer cell line
- Learned to work under the sterile hood, prepared media, reseeded cells, checked confluency, used Trypan blue staining, performed cell counting using a hemocytometer and a microscope
- Total Hours: 60+

Group Research Project for Physiology Laboratory (BI207L)

Caldwell University, Caldwell NJ

Fall 2021

Mentor: Dr William Velhagen

Project Title: Effects of Exercise Rate on Muscle Fatigue in Young Men and Women

Subjects

- The bicep muscle was targeted with a strenuous workout at different intensities and the grip strength was evaluated as an indicator for muscle fatigue
- Composed a research proposal and wrote an informed consent form for human subjects (24)
- Used a hand dynamometer, a Vernier graphical analysis tool, and performed the student t-test
- Total hours: 10 hours

SYMPOSIUM POSTER PRESENTATIONS

- Raul Gonzalez, **Samuel Annan**, “Effects of Nettle tea leaf on a colorectal cancer cell line”, *WPU Undergraduate Research Symposium*, William Paterson University, Wayne, NJ, April 2022.
- Raul Gonzalez, **Samuel Annan**, “Effects of Nettle tea leaf on a colorectal cancer cell line”, *Independent Colleges and Universities of New Jersey Undergraduate Research Symposium*, virtual Poster presentation, NJ, April 2022.
- Shanid Shrestha, **Samuel Annan**, “A new and facile route to building Aflatoxins G”, *Caldwell Research & Creative Arts Day*, Caldwell University, Caldwell, NJ, April 2022.

LEADERSHIP EXPERIENCE

Vice President of the American Chemical Society Student Chapter at Caldwell

Caldwell University, Caldwell NJ

Spring 2022- Present

- Organize events to raise funds for charity

- Organize bi-weekly meetings that involve STEM professionals presenting about their research, careers, and advice.
- Communicate effectively between the president, members, school officials, and the AS headquarters and local quarters.

President, Doctors Without Borders (MOF) Chapter

Caldwell University, Caldwell NJ

Fall 2021- Present

- Represent the chapter during student council and national Doctors Without Borders meetings
- Lead the club to raise awareness to the need of good mental and physical health in the Caldwell community

Donor Ambassador, American Red Cross Society (Whole Blood Drives)

Essex County, NJ

Fall 2021- Present

- Assist with donor check-ins during drives
- Monitor donors for side effects and remind them to rehydrate after blood drive
- Hand out giveaways to donors after blood drive

WORK EXPERIENCE

STEM Advanced Laboratory Undergraduate Teaching Assistant

Caldwell University, Caldwell NJ

Spring 2022 - Present

- Assist the laboratory instructor with lab preparation, modification, and conduct
- Supervise students during lab sessions and clarify challenging concepts to them
- Lead lab session and present pre-laboratory instructions during laboratory sessions
- Enhance teaching skills needed to run a laboratory exercise efficiently and safely

Peer Tutor

Caldwell University, Caldwell NJ

Fall 2021- Present

- Run one-on-one tutoring sessions for undergraduate students on courses
 - General biology I & II, General chemistry I & II, Anatomy and Physiology I & II, Cell biology, Organic Chemistry I & II, Biostatistics, Environmental Biology, Principles of chemistry, and calculus
- Review study guides, problems, and lecture slides with students in preparation for quizzes and exams

Orientation Leader

Caldwell University, Caldwell NJ

August 2021

- Served as a positive role model for incoming international freshmen and transfer students

- Introduced students to resources and opportunities available to them on campus

VOLUNTEER EXPERIENCE

Volunteer, Caldwell Service Day

St Aloysius Parish, Caldwell NJ

September 2021

- Assisted with gardening maintenance and fall yard work
- Cleaned and sterilized windows and doors of the parish building
- Total hours: 5 hours

Volunteer, Autism and Behavioral Analysis Center

Caldwell University, Caldwell NJ

Spring 2020

- Prepared study materials and schedules for autism patients
- Total hours: 25 hours

Volunteer Reviewer, Stepping Stones to Medicine Review Team

Fall 2020- Present

George Washington University Medical School, St. Louis, St. Louis, MO.

- Review stories by medical students concerning their journey toward and during medical school
- Total hours: 20 hours

Volunteer, In It Together

IIT, Bronx NY

Summer 2020

- Distributed food from pantries and restaurants to needy residents in New York during the pandemic
- Total hours: 45 hours

MEMBERSHIPS

Caldwell University Health Profession Club

January 2022- Present

Caldwell University Tennis Club

February 2022- Present

Beta Beta Beta Biological Honor Society

April 2022-Present