Rama Al-Atout

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Summary

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|  | A dedicated, enthusiastic and experienced student; able to communicate effectively with all organizational levels, prioritize efficiently to accomplish objectives with creativity and passion, and maintain a positive attitude and strong work ethic. |

Education

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| Level 4 | **Honours Bachelor of Science in Integrated Science with a Concentration in Chemical Biology, McMaster University**   * A new innovative and integrated science program emphasizing leadership, communication, independent learning, teamwork, research, lab, and scientific literacy skills * Research projects that incorporate several different skills and disciplines |
| 2010 – 2014 | **Ontario Secondary School Diploma, M.M Robinson High School, Burlington, Ontario** |

Skills

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|  | * Strong communication skills from presenting professional poster and PowerPoint presentations involving scientific research * Effective and clear delivery of information through in-person and on-line communication * Writing of literature reviews, manuscripts, laboratory protocols, curriculum packages, textbook pages, scientific magazine articles, and dossiers for a wide variety of audiences * Group work in research projects spanning 3-10 weeks all year long * Formatted extensive research plans detailing available tools and resources, outlining project and internal deadlines, identifying and delegating tasks, and establishing project goals * Ability to motivate teams to perform at their best in providing excellent service and developing ongoing relationships * Ongoing development of multitasking, problem solving, and organizational skills from new school and work experiences * Proficient in taking student queries and answering them in an educated and respectful manner * Prioritizing and delegating tasks effectively to ensure timely project completion with in a team environment * Superior leadership skills from assisting 9th grade students with adjusting to the high school environment, as well as helping undergraduate students within the chemistry and chemical biology program * Great teamwork abilities from being involved in multiple team sports, such as soccer, basketball, and flag football * Patient listener and risk taker who is open to new ideas and suggestions * Frequent use of different citation styles in scientific dossiers and deliverables * Designing original lab experiments * Effective meeting planning and facilitation skills * Ability to adjust in fast-paced multitasking environments * Strength in bridging gaps among people through education and interpersonal relations * Strong debating and convincing talents from presenting controversial scientific topics * Effective reading and locating of reliable scientific journals and articles for research projects * Ability to keep and maintain an organized and informative research notebook * Experience with maintaining confidentiality while working with human patients   **Laboratory Skills**   * WHIMIS and Biosafety courses * Basic lab skills such as, aseptic techniques, microscope use, and micro-pipetting * Spectrophotometry * Serial dilutions * Thin layer and column chromatography * Vacuum filtration and ultracentrifugation * Microsoft Excel for basic data analysis (calibration curves, LINEST function, etc.) * IR, 1H NMR and 13C NMR analysis * NMR, HPLC, FTIR, SEM, DLS, UV-Vis |
|  | **Technological Skills**   * Basic video, photo, webpage, and yearbook editor * Experienced Microsoft Word, PowerPoint, Excel, and OneNote operator * Elementary photographing and video-recording abilities * Basic coding capabilities in Matlab, Minitab, Maple, SPSS, and R |

Research projects

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| May. 2017 – present | **Mixed polymeric micelles based on PPG-grafted hyaluronic acid copolymer for ophthalmic delivery of dexamethasone, Faculty of Engineering, Department of Chemical Engineering, McMaster University**  Primary Investigator/ Consultant: Dr. Heather Sheardown   * An undergraduate thesis project that focused on developing a novel polymer (PPG-grafted hyaluronic acid) to be used as a nanocarrier of dexamethasone, in order to improve the bioavailability and retention time of the drug * Developed mixed micelles using the PPG-grafted hyaluronic acid and analyzed the physiochemical characteristics such as size, morphology, zeta potential, entrapment efficiency, and drug loading * Completed an *in vitro* drug release study to assess the drug release properties of dexamethasone from the mixed micelles |
| Jan. – Apr. 2017 | **The Effects of Lifestyle and Mood on Cognition, Department of Psychology, Neuroscience and Behavior, McMaster University**  Primary Investigator/ Consultant: Dr. Sue Becker   * Investigated the relationship between correlates of hippocampal memory function and biomarkers of mood and memory * Completed a literature review, experimental protocol, and statistical analysis that examined the association between chronic vs. short-term stress and binge drinking patterns on cognitive deficits and weather there is potential for recovery of cognitive functions after cessation of binge drinking in adult participants * Administered a series of computer-based tests to participants to collect data on lifestyle, mood, and cognition patterns |
| Jan. – Apr. 2017 | **Light, the Universe, and Everything, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Sarah Symons   * Presented two seminars on the topic of space weather and its effects on telecommunications * Created and article and infographic looking at the science, history, and myth of Auroras on Earth and other planets in the solar system |
| Oct. – Dec. 2016 | **Forensic Investigation, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Carolyn Eyles and Mr. Russ Ellis   * Developed keen observation and documentation skills by investigating and collecting evidence from a series of staged crime scenes * Developed quick thinking skills by participating in on-the-spot and court-style debates * Developed concise writing skills by co-authoring a series of brief case reports |
| Sep. – Dec. 2016 | **Climate Change, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Jay Brodeur   * Researched the scientific fundamentals of climate change and its connections to social, natural, and political systems * Proposed a small-scale, shot-term solution to climate change by increasing the albedo of crops planted and used * Co-authored a brief report outlining the use of high albedo crops as a proposed solution to regional climate change |
| Sep. – Oct. 2016 | **Wine Science, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Carolyn Eyles, Mrs. Sarah Robinson, Mr. Russ Ellis   * Carried out a research inquiry focused on developing an understanding of the science involved in various aspects of the wine industry. * Participated and led paper discussions using peer reviewed articles relevant to the topic * Co-authored an original 3500 word scientific review for the Integrated Science annual magazine *Terroir* in the style of *Scientific American* on the changing climate of viticulture in the Niagara region * Peer reviewed two other *Terroir* articles and submitted a review report to provide feedback |
| Feb. – Apr. 2016 | **The Thermodynamics of Self-Assembly, School of Interdisciplinary Science, McMaster University**  Project Supervisor: Dr. Randall Dumont   * Collected and critically evaluated the literature surrounding the thermodynamics of self-assembly * Authored a 6000 word literature review on the technical and biological importance of supramolecular structures that result from the self-assembly of amphiphilic molecules |
| Feb. – Mar. 2016 | **Drug Discovery, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Daniel Yang   * Created a Wikipedia page and presented research regarding the role of alpha-synuclein on Parkinson’s Disease * Co-authored and proposed a drug to help prevent the misfolding and aggregation of alpha-synuclein by negating hyperphosphorylation pathways and altering the conformation of protofibrillar forms. |
| Jan. – Feb. 2015 | **Thermodynamics, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Randall Dumont   * Developed and marked an original three part assignment as a part of a group covering the topic of the three laws of thermodynamics * Co-authored an original set of questions, rubric, and answer key in the form of an assignment, which was completed by other groups within the course |
| Nov. – Dec. 2015 | **History of the Earth, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Sarah Symons and Dr. Carolyn Eyles   * Researched the fundamental geological concepts and understanding of the historical development of scientific thought * Collected and evaluated primary and secondary historical sources * Co-authored a six paged chapter regarding the evolving theories of the shape of the Earth for History of the Earth Vol. VI |
| Oct. – Dec. 2015 | **Neuroscience, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Deda Gillespie   * Designed a detailed and scholarly curriculum for high school students and presented a highly interactive academic poster highlighting the planned curriculum that looks at the neuroscience behind vision and amblyopia |
| Sept. – Oct. 2015 | **Plant-Animal Interactions, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Chad Harvey   * Designed and conducted an original experiment studying aphid meta-population dynamics and host selection * Investigated, through a six week lab experiment and statistical analysis, the interaction between *Myzus persicae* and *Arabidopsis thaliana* * Co-authored a manuscript about the induction of the Jasmonic Acid plant defense pathway affecting the host-plant selection of *Myzus persicae*; defended the research at a defense panel consisting of course instructors. |
| Feb. – Apr. 2015 | **Cancer – A 21st Century Plague?, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Joseph Hayward and Dr. Thomas Farrell   * Researched and presented the effects that different chemotherapy agents have on cognitive function * Wrote a paper looking at the causes, epidemiology, genetic susceptibility, symptoms, detections, positron emission tomography scan, boron neutron capture therapy, and prevention of malignant melanoma |
| Jan. – Feb. 2015 | **Sustainable Energy in Challenging Environments, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Chad Harvey and Mr. Russ Ellis   * Researched the process of harnessing energy and the sustainability of bio refineries and crop fuels and reported findings in the form of a dossier * Used Maple software to model the energy needed grow the crops and maintain a given soil quality with the energy they would output as a fuel. * Generated and presented a thorough energy proposal, which involved a recommendation and justification for the specific location, design, and implementation of wind turbines on Christian Island, Ontario |
| Oct. – Dec. 2014 | **Drug, Doses, and Bio-distribution, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Chad Harvey and Dr. Pippa Lock   * Performed background research on the chemical structure, synthesis, reactivity and properties, and the physiological, psychological and environmental effects of alcohol, caffeine, and methylphenidate * Created a mathematical model of alcohol consumption and the rate it is absorbed into and out of the bloodstream * Presented a meta-analysis looking at the effects of parental maternal alcohol and caffeine consumption on birth weight at 40 weeks |
| Sept. – Oct. 2014 | **Planetary Exploration, School of Interdisciplinary Science, McMaster University**  Project Lead: Dr. Rob Cockcroft and Mr. Russ Ellis   * Investigated the characteristics of planetary orbits around single and, in some groups, binary stars, as well as defined the “habitable zone” as it applies to planets and develop parameters for selecting exoplanets for future missions using Maple software * Investigated Mars as a Solar System analogue for exoplanets * Investigated the redox potential of Earth’s soil and compare that to the soil of exoplanets in order to determine which planets would be or have been able to sustain life. |

IN-COURSE PUBLICATIONS

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|  | Copies of the final drafts are available upon request.   * Al-Atout, R., Chong, M., Edwards, R., Marr, A., Nelson, C., *The Changing Climate of Viticulture in the Niagara Region.* McMaster University, October 2016. * Al-Atout, R. *Thermodynamics of Micelle Self-Assembly.* McMaster University, April 2016. * Al-Atout, R., Maloney, J., *Evolving Theories of the Shape of the Earth.* McMaster University, December 2015. * Al-Atout, R., Andres, C., Chong, M., Edwards, R., Pantaleo, J*. Plant defense response and host-plant selection of Myzus persicae*. McMaster University, October 2015. |

Work Experience

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| Summer 2017 | **Chemical Engineering Research Assistant with Dr. Heather Sheardown , McMaster University, Hamilton, Ontario**   * Drug delivery to the back of the eye using vesicle systems, such as, micelles and niosomes * Assist graduate students with lab work and procedures * Running reactions with caution and safety * Lab maintenance * Weekly presentations and group meetings to discuss previous weeks work and progress |
| 2016-present | **Sales Clerk, Pharmacy Assistant and Key Holder, Rexall Pharmacy, Burlington, Ontario**   * Responsible for opening and closing the store * Complete bank deposits and other end of the day tasks * Provide exceptional customer service * Cashier and lottery ticket responsibilities * Inventory and restocking * Assist in pharmacy duties as necessary * Maintain a positive and enthusiastic attitude every shift |
| 2016-present | **Sales Representative, Central Sales, Hamilton, Ontario**   * Attend Trader Forum Shows in Ontario eight times a year * Communicate and share new products with customers through an online catalogue * Gain new clients and maintain relationship with old clients * Maintain and update online catalogue, invoices, and e-mails |
| 2013-2016 | **Head Cashier and Sales Associate,  Mr. Liquidation, Hamilton, Ontario**   * Building relationships and trust with co-workers * Enlisting the participation of team members * Forming professional and profitable relationships with the public * Supervising staff with a management style that motivates staff productivity |
| 2011-2013 | **Stock Handler and Order Filler, WM Discount and Liquidation, Hamilton, Ontario**   * Strategizing and prioritizing effectively in order to accomplish multiple tasks and stay calm under pressure * Required organizational skills in order to effectively keep track of stock * Communicating with other companies to find products that will lead to the most profit |

Volunteer and Community Experience

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| 2017-present | **Neuroscience Lab Assistant,  McMaster University, Hamilton, Ontario**   * Provide participants with psychological computer-based tests * Look at the effects of binge-drinking on cognition and memory |
| 2015-2016 | **McMaster Undergraduate Society for the Chemical Sciences,  McMaster University, Hamilton, Ontario**   * Assist first year students in answering questions regarding the chemical biology program * Helped create and host events such as the graduate information session, mental wellness night, the Chemical Institute of Canada information session, as well as social events for the chemistry and chemical biology program * Kept students informed and excited about events occurring within the faculty |
| 2015-present | **Big Sib Program,  McMaster University, Hamilton, Ontario**   * Assist first year students in answering questions regarding the Integrated Science Program * Get to know a group of 3 incoming Integrated Science students on a personal level and introduce them to the university environment * Mentor the incoming Integrated Science students and keep students informed and excited about events occurring within the faculty |
| 2013-2014 | **Link Crew Leader, M.M Robinson High School, Ontario**   * Assisted 9th graders and other new students in adjusting to new environments by carrying a positive and exciting attitude |
| 2012-2014 | **Student Council Social Coordinator,  M.M Robinson High School, Burlington, Ontario**   * Organized and recruited students to several social activities (football games, drama shows…) where students can meet new people * Communicated and explained ideas thoroughly to staff members and student council members * Took recommendations from students given through email and in-person interactions |
| 2012-2014 | **Yearbook Photographer and Editor,  M.M Robinson High School, Burlington, Ontario**   * Took photos of school social events and day-to-day life * Worked with staff and other students in creating and organizing a yearbook using an online computer software |
| 2012-2014 | **Video-recording Equipment Operator and Editor,  M.M Robinson High School, Burlington, Ontario**   * Captured videos of sport games, graduations, dances, and other social events * Edited videos and made short movies highlighting the events that have taken place throughout the school year for assemblies |

Awards and honors

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| 2014 | Entrance to University Honours Award, McMaster, Hamilton, Ontario |
| 2010-2014 | Academic Honours Award, M.M Robinson High School, Burlington, Ontario |
| 2014 | Most Spirited Player for Senior Soccer,  M.M Robinson High School, Burlington, Ontario |
| 2014 | Bronze Medal for Academic and Extracurricular Involvement,  M.M Robinson High School, Burlington, Ontario |
| 2013 | 4th Place Beginner Guitar Competition,  Merriam School of Music, Oakville, Ontario |