

# Mellon College of Science

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# Jason Biology

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## EDUCATION

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**Carnegie Mellon University**, Pittsburgh, PA  
**Bachelor of Science in Biological Sciences**, GPA: 3.6/4.0  
Minor: Biomedical Engineering

May 2021

## EXPERIENCE

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**Clinical Research Intern**, Atlantic Melanoma Center: Morristown Medical Center, Morristown, NJ Jun – Aug 2018

- Investigated incidence of BRAF, NRAS, and C-Kit mutations in melanoma patients within the Atlantic Health System
- Conducted a retrospective chart review on 111 patients who underwent oncologic genetic testing
- Studied patient demographics leading to the possible development of certain genetic mutations
- Performed extensive literature review of medical articles pertaining to melanoma cases and genetic mutations
- Presented trends establishing the foundation of research and results of my study in a comprehensive article

**Office Assistant**, Mellon College of Science Dean's Office, Carnegie Mellon University Aug 2018 – Present

- Facilitate operation of the office through administrative responsibilities and event coordination
- Managed 100 volunteers for MCS Pride Day; assigned positions and responsibilities to serve over 500 event attendees

## LEADERSHIP

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**Board Member**, NeuroSAC, Carnegie Mellon University Aug 2018 – Present

- Plan and organize Carnegie Mellon and community service events to increase camaraderie between Neuroscience majors while giving back to the Pittsburgh community

**Secretary**, Future Leaders of Science, Carnegie Mellon University Sep 2017 – Present

- Maintain accurate and thorough written records of organization's proceedings; collaborate with team of five officers to organize community service and fundraising events

## SKILLS

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**Research:** Titrametric analysis, cell transformation, making competent cells, enzyme digestions, DNA ligation, DNA synthesis, primer design, SDS gel, mini-prep, spectroscopy, bacterial vector cloning, electroencephalogram subject running, polymerase chain reaction, high-pressure liquid chromatography, infrared spectroscopy, nuclear magnetic resonance, extraction, gas chromatography, distillation, boiling point determination

**Computer:** Excel, PowerPoint, MiniTab, SPSS

**Languages:** Spanish (fluent)

## EXTRACURRICULAR

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**Biological Sciences Student Advisory Committee**, Member

Sep 2018 – May 2019

**Alpha Phi Omega**, Vice President of Community Outreach

Sep 2017 – Present

**Intramural Track Team**, Member

Jan 2017 – Present

# CHRISTINE CHEMISTRY

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## EDUCATION

**Carnegie Mellon University**, Pittsburgh, PA May 2021  
Bachelor of Science in Chemistry, Minor in Mathematical Sciences  
Cumulative GPA: 3.88, Dean's List High Honors (Fall 2018, Spring 2019)

**Relevant Coursework:** Fundamentals of Programming & Computer Science, Modern Analytical Instrumentation, Professional Communication Skills in Chemistry, Molecular Design & Synthesis

## RESEARCH EXPERIENCE

**Chemistry Department, CMU** May 2019 – Present  
*Research Assistant; P.I. Dr. Alan Smyth*

- Analyze the morphological and mechanical properties of polymers by atomic force microscopy
- Study electronic properties of nanoparticles by UV-Vis spectroscopy; analyze data using MATLAB and Mathematica

**Chemistry Department, CMU** Aug 2016 – Present  
*Researcher; P.I. Dr. Stefanie Sydlik*

- Design synthetic scaffolds that attach therapeutics to carbon nanotubes
- Observe delivery of the therapeutic to understand how it would release in the body; record results
- Analyze novel products and confirm the degree of functionalization
- Communicate new scientific techniques with the community via papers and publications
- Funded by NASA and a University grant to continue research in the summer

**Drug Metabolism & Pharmacology Group, Cambridge MA** Jun 2017 – Aug 2017  
*Synthetic Chemistry Intern*

- Carried out a new route to synthesize a drug of interest
- Performed analysis of reactions by HPLC and LC/MS, purification by column chromatography and preparatory HPLC, and characterization of new compounds by NMR spectroscopy
- Delivered a PowerPoint presentation to the DMP group of research directors at the end of the internship

## OTHER EXPERIENCE

**Academic Development, CMU, Peer Tutor** Oct 2018 – Present  

- Lead weekly tutoring sessions for individual students; conduct walk-in tutoring sessions for larger groups as needed
- Tutor students in multiple courses including Modern Biology, Principles of Computing, Biochemistry, and Organic Chemistry

**Eureka! First Year Seminar, Mellon College of Science, CMU, Teaching Assistant** Aug 2018 – Present  

- Support curriculum delivery of a first year seminar course designed to facilitate student success in college
- Work with a faculty partner to plan and lead a weekly recitation section of fifteen students to reinforce key concepts

## TECHNICAL SKILLS

**Computer:** Proficient in Python, Mathematica, LaTeX, MS Office; basic in Maple, MATLAB, Ruby, Ampac

**Laboratory:** Atomic force microscopy, IR, NMR, EPR, UV-Vis, atomic absorption, fluorescence spectroscopies, column chromatography, HPLC, preparatory HPLC, gas chromatography, gas chromatography-mass spectrometry, liquid chromatography-mass spectrometry, distillation, gel electrophoresis, polymerase chain reaction

## ACTIVITIES

Murder Mystery Play, Department of Chemistry, CMU, Cast Member Feb 2019  
First-Year Mentor Program, Mellon College of Science, CMU, Peer Mentor Aug 2018 – Dec 2018

## AWARDS & HONORS

ACS Analytical Chemistry Division Award May 2019  
Warner Prize for Sophomores Aug 2019

# MELISSA DEMATH

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## EDUCATION

**Carnegie Mellon University**, Pittsburgh, PA  
Bachelor of Science, Computational Finance  
Cumulative GPA: 3.8/4.0

May 2020

**Relevant Coursework:** Mathematical Finance, Statistical Inference, Probability Modeling, Macroeconomics, Linear Algebra, Fundamentals of Programming, Data Structures and Algorithms, Differential Equations, Multivariable Calculus

## EXPERIENCE

### Quantitative Analyst, Global Research

Jun-Aug 2019

Fortress Investment Group LLC, New York, NY

- Built a model in Python that traces the movement of exchange rates through global and local macro drivers and delivered a report to FX traders based on findings of the model
- Developed a database in Python that processes and classifies 200+ excel source files of daily Brazil inflation monitor to support prediction of monthly official release
- Recreated computations of Brazil core inflation measure by analyzing BCB publications and statistics papers
- Organized Brazil inflation data to facilitate mid-month and end-month reporting by restructuring the file and constructing macros in VBA excel to fully automate computations and updates

### Summer Analyst, Data Science Team

Jun-Aug 2018

BNY Mellon, Pittsburgh, PA

- Delivered proof of concept initiative to spearhead improvements in data handling best practices
- Devised real-time statistical models using raw data from Vertica to detect disruptions in database service
- Analyzed and logged the model's output to feed in to a database monitoring webapp
- Developed Python script to help load market data into the FX trading technology group's database

### Research Analyst, Department of Mathematical Sciences

Jun 2017-May 2018

Carnegie Mellon University, Pittsburgh, PA

- Conducted research on options pricing within incomplete trinomial models with Dr. William Hrusa
- Provided research support by conducting mathematical computation and financial analysis of the results
- Determined the maximized expected utility, indifference price, and optimal order size with various utility functions

## ACTIVITIES AND PROJECTS

### Personal Trading Account

Jun 2015-Present

- Invest money in the financial markets by constructing a portfolio of stocks and EFTs on commodities, US equity indices and volatility index based on personal views of the markets

### Vice President, Financial Frontline Society

Sep 2018-Present

- Increased club membership by 120% to become second largest financial organization on campus
- Coordinate stock pitch competition to enhance effective relations with other organizations on campus
- Schedule alumni speaker events

### Finalist, Center for Financial Innovation Case Competition

Nov 2018

- Placed 3rd out of 20 teams at a university-wide case competition
- Presented a business strategy to help PNC grow their mobile banking applications

### Designer, Fundamentals of Programming Final Term Project

Dec 2017

- Designed and programmed an interactive version of Monopoly in a span of 3 weeks from scratch in Python
- Video demo: <https://www.youtube.com/watch?v=D6xPfNvr234>

## SKILLS

**Software:** Python, MS Office, R, Matlab, Java, C

**Languages:** Native proficiency in English and Mandarin; Intermediate proficiency in French

# Frank Physics

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(412) 268-2064

## EDUCATION

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**Carnegie Mellon University**, Pittsburgh, PA May 2020  
Bachelor of Science in Physics, Minor in Mathematical Sciences  
Major GPA: 3.4 Overall GPA: 3.0

**Institute for the International Education of Students**, La Plata, Argentina Fall 2018

**Relevant Coursework:** Thermal Physics, Introduction to Nuclear and Particle Physics, Linear Algebra, Nanoscience & Nanotechnology, Advanced Quantum Physics, Electronics, Physical Mechanics I & II, Independent Study (General Relativity)

## EXPERIENCE

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**Senior Researcher**, Physics Department, Carnegie Mellon University Jan 2019-Present

- Designed an electron tunneling experiment for use in Modern Physics Lab
- Operate and maintain mechanical, ion and cryo vacuum pumps
- Trained in ultra-high vacuum and vacuum deposition techniques

**Research Assistant**, Physics Department, Carnegie Mellon University Summer 2018

- Built and modified a Duplex Cryostat as part of a 4-person research team
- Studied the effect of the filaments size on the count rate per X-ray beam window size
- Used X ray diffraction at low temperature to study Bragg Diffraction with respect to temperature

**Teaching Assistant**, Mathematics Department, Carnegie Mellon University Spring 2018

- Taught two calculus lectures each week to sophomore class of 125 students
- Graded weekly problem sets and provided feedback
- Developed answer keys for tests; proctored semester final exams
- Explained and clarified difficult concepts to students during weekly office hours

**Research Intern**, Geology Department, SUNY Purchase, Purchase, NY Summer 2017

- Mentored by Yuri Gorokhovich, PhD
- Analyzed data reflecting the changes in rock and water levels obtained from GPS satellites
- Analyzed the physical properties from the data and displayed the data in OpenDx

## TECHNICAL SKILLS

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**Software:** Matlab, Gnuplot, Maple, Mathematica, LaTeX, IBM 3-D OpenDx Visualization, Eclipse

**Operating Systems:** Linux, Windows 95/98/2000/XP, Mac OSX, Unix, TinyOS

**Computer Languages:** Java, C++, C, Perl, MySQL, Fortran

## ACTIVITIES

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President, Society of Physics Students Fall 2019-Present  
Mellon College of Science Physics Student Advisory Council Fall 2018-Present  
Intramural Soccer Club Fall 2017-Present