C²QA QIS 102: Applied Quantum Computing Summer School

June 10 – 28, 2024

*"There is a distinct need to teach students core scientific computing,
and then stitch quantum computing concepts to enhance intuition and skills."*

David Biersach
Senior Technology Architect
Brookhaven National Laboratory

Brookhaven National Laboratory offers a three-week virtual workshop to introduce rising college juniors, seniors, and recent college graduates to the exciting world of quantum information science (QIS). Led by **Dr. David Biersach**, through a series of demonstrations and hands-on programming labs, students will learn how quantum algorithms, when applied to specific problem domains, can outperform classical computers. Students will learn **IBM Qiskit**, a world-class software package for working with quantum computers at the level of pulses, circuits, and application modules. Students will download and install the 100% open-source courseware and development tools on their personal computers, which they will use during the program. Accepted students will be provided with a weekly stipend of $500 and those who successfully complete the workshop will be presented with a certificate from Brookhaven National Laboratory attesting to their skills in **Applied Quantum Computing**. The workshop will run each day, Monday – Friday, for three weeks from June 10 – 28, 2024 from 10:00 AM – 6:00 PM ET (two 1-hour breaks) and be conducted entirely via Zoom web conferencing.

STIPEND: $500 per week

ELIGIBILITY: Minimum 18 years of age. Must be a U.S. citizen or Legal Permanent Resident. Must successfully complete the Brookhaven National Laboratory Guest Registration process.

PREREQUISETES: Students must have completed all (6) courses listed below prior to program commencement on Jun 10, 2024 with a grade B (3.0 GPA) or better.

- **Computer Programming:** A course covering an "Introduction to Programming" and a course covering "Data Structure & Algorithms".

- **Math:** A course covering "Linear Algebra with Vectors & Matrices" and a course covering "Differential Equations".

- **Physics:** A course covering "Physics Using Calculus including Classical Mechanics & Electromagnetism" and a course covering either "Thermodynamics" or "Mathematical Methods in Physics".

In addition to the above, only applicants who are rising college juniors or seniors (or recent college graduates) and who will have completed the spring 2024 semester by June 10, 2024 will be considered.

DAILY SCHEDULE: Monday – Friday, from Jun 10 – 28, 2024.

Zoom Session #1:   10:00 am to 12:00 pm (EDT)
Zoom Session #2:   1:00 pm to 3:00 pm (EDT)
Zoom Session #3:   4:00 pm to 6:00 pm (EDT)

Attendance in the three sessions each day for the entire two hours per session is required.
Students should anticipate two hours of homework each day.

KEY PROGRAM DATES:

Mar 26, 2024   Registration Opens at 9:00am ET
Apr 12, 2024   Registration Closes at 6:00pm ET
Apr 24-26, 2024   Applicant Decisions Communicated
May 3, 2024   Applicant Decision Deadline
May 6, 2024   Onboarding Begins
Jun 10, 2024   Program Commences
Jun 28, 2024   Program Concludes

APPLY HERE!