Berkeley MSSE
MOLECULAR SCIENCE &
SOFTWARE ENGINEERING

Get ready to make an **IMPACT**!
- Become proficient in multidisciplinary environments
- Master the tools to translate data to models, models to software, and software to products
WHY MSSE

The Master of Molecular Science and Software Engineering (MSSE) program combines the immense intellectual strengths of the College of Chemistry and the College of Engineering at UC Berkeley. The degree is delivered through online courses created by world experts and committed faculty to train the next generation of leaders in scientific computing and software engineering. Our students graduate with the abilities to translate highly sophisticated theory, models, algorithms, and data analytics into software frameworks that others can use or build upon.

The online, part-time degree is designed for academically exceptional students with degrees in a STEM field who want to get hands-on experience to join the multidisciplinary world of high-performance computing (HPC), molecular science, software engineering, big data analytics, and entrepreneurship.
MSSE PROVIDES

- Computational tools to comfortably work within a range of scientific domains, including molecular simulation, quantum chemistry, data science, and machine learning.

- Software engineering practices to develop software frameworks that others can use or build upon.

- Statistical and machine learning experience to develop sophisticated analytics models for the interpretation and integration of large, complex datasets.

- Leadership, management, and entrepreneurial skills with an ethics focus.

- Practical skills through collaborative projects based on real-life, multidisciplinary applications.

- Uniquely designed courses taught by world-renowned UC Berkeley faculty

- Lots of interactive discussions with faculty, graduate student instructors and peers.
The MSSE program launches with a two-week boot camp, Foundations of Programming and Software Engineering, that provides students with the tools and practices commonly used in software development such as version control, documentation, and testing. Central to this course is a hands-on molecular simulation project where students work in groups to create a software package using concepts taught in the course. Students then complete 30 units of coursework over four semesters during the 2-year, part-time online program. During the last semester, all students complete a capstone project with an industrial or government lab partner. The program ends with a two-week boot camp that provides students with management and leadership skills needed to make an immediate impact in industry.
Jasmine Hakim-Elahi
MSSE 2020
“I am very excited to begin my studies with MSSE and to see how all of the various fields in the curriculum work together to advance scientific discovery and development.”

Angela Hou
MSSE 2020
“I chose to do MSSE because I’ve always been interested in Data Science and Computer Science, and I think it’s necessary to be able to marry the two disciplines as we move forward into a more technological society.”

Muhan Zhang
MSSE 2020
“I have always been keen on computational chemistry but I found it difficult to start. The MSSE program at UC Berkeley provides me with valuable resources to support my scientific needs.”
APPLICATION REQUIREMENTS

- **B.A. or B.S.** in a physical science or engineering discipline from an accredited institution.

- **Minimum 3.0 GPA** on a 4.0 scale

- **Minimum TOEFL 90 (IBT) / 570 (PBT) / 7.0 IELTS**

MSSE starts accepting applications in September through January for the following Fall cohort of students. You can learn more about applying on our website.

LEARN MORE

- website  https://chemistry.berkeley.edu/msse
- email  MSSE@Berkeley.edu
- instagram  @ucb-msse