



West Valley College

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OVERVIEW

West Valley College is one of two colleges in the West Valley-Mission Community College District (WVMCCD). The campus is situated on 143-acres in the city of Saratoga at the southwest border of Silicon Valley. WVC has served the surrounding communities of Saratoga, Los Gatos, Campbell, and their respective school districts for sixty years. The College's student population includes many from historically underrepresented in post-secondary education as well as STEM education, and it has recently been designated as a Hispanic Serving Institute (HSI). A significant proportion of students are from educationally disadvantaged backgrounds, including 24% first-generation students and 38% low-income students (receive financial aid).

WORKFORCE TRAINING

The College provides a full range of core academics, transfer programs, and technical programs, as well as mentoring and internship programs with numerous academic and research partners. In July 2023, the College launched the MESA (Mathematics, Engineering, Science Achievement) program, which is entirely focused on supporting first-generation, low-income STEM students. The college offers Associate in Arts or Science Degrees, Associate Degrees for Transfer, and variety of Certificates of Achievement that offer a sequence of courses for those who wish to enhance a specific skill area of specialization, or Certificates of Completion which include a sequence of tuition-free courses designed to prepare student to progress in a career path or improve employability. Examples of Certificates of Achievement and Completion include Cisco Certified Network Certificate of Achievement.

RESEARCH CAPABILITIES

Biology:

- Our students have conducted research on Redwood Study Research with our own faculty in partnership with Humboldt State University.

- Biology faculty awarded a grant by the NSF, Jasper Ridge Biological Preserve and other partner institutes to plan the San Francisco Bay Research Coordination Network for Student Opportunities in Avian Research (SOAR) to enhance STEM Education.

Engineering:

- MESA students participated in summer research at SLAC.

Computer Science:

- Actively engaged in AI projects such as (RAG, vector database, LLM, etc...) and continue to develop our expertise in this area.

Physics:

- Beyond coursework, students engage in faculty-mentored research that leverages departmental facilities. For example, a group of students recently designed and built optical tweezers capable of holding a nanodiamond, which they could then excite and use as a model system for quantum computing.

FACILITIES & INSTRUMENTATION

Computer Science: The West Valley College Computer Science and Engineering Department has established a high-performance computing infrastructure to support advanced student projects in machine learning, deep learning, and large language models. This includes four dedicated servers equipped with NVIDIA RTX 4090-class GPUs, providing the computational power necessary for cutting-edge coursework and research. To support instruction in ARM architecture and embedded systems, students are loaned fully equipped Raspberry Pi single-board computers (models 3B+, 4B, or 5), programmed using the WiringPi library in C. Additionally, the department maintains a fleet of approximately 30 mini PCs for lightweight ML/DL model training, as well as two NVIDIA. **Physics Laboratories** The department supports a broad range of classical and modern experiments. Mechanics instruction is enabled by precision aluminum dynamics tracks, launchers, pulleys, and wireless PASCO sensors including force, motion, smart carts, and rotary motion sensors. Electricity and magnetism laboratories feature regulated DC power supplies, digital oscilloscopes, signal generators, variable transformers, digital multimeters, LCR meters, capacitor and inductor boxes, variable capacitors, electrometers, and electrostatics kits including Van de Graaff generators and conductive spheres. Optics facilities include optics tracks and mounts, lenses, and photodetectors for studies in geometric and physical optics. **Astronomy and Planetarium Facilities:** The college operates a state-of-the-art planetarium with a hybrid opto-digital projection system. In addition to the on-campus telescopes, students have access to a remotely operated research-grade telescope through institutional partnerships. This enables them to conduct CCD imaging, photometric monitoring of variable stars, and targeted observations of transient events that would not be possible with campus facilities alone. Faculty have also developed undergraduate research experiences tied to national initiatives, including eclipse observations and citizen-science collaborations (e.g., Zooniverse, AAVSO). **Geology and Oceanography Facilities** The Geology and Oceanography programs maintain extensive collections and field equipment to support hands-on student research. Laboratories house curated rock, mineral, and fossil collections used for identification, classification, and petrographic analysis. Field courses and undergraduate research projects are supported with Brunton compasses, GPS units, and topographic maps for structural geology and mapping exercises. Oceanography students work with tide gauges, water sampling kits, plankton nets, and portable sensors for pH, salinity, temperature, and dissolved oxygen. In addition, the geology lab is equipped with specialized tools such as a rock saw and rock polisher, allowing students to prepare high-quality samples for microscopy and geochemical analysis.

PAST PERFORMANCE

- In December 2023, West Valley College was awarded a \$1.9 Million State funded to establish the MESA program.
- Math Faculty Jesus Gonzalez is a Co-PI on the Expanding Equity and Access in Discrete Mathematics Grant that awarded \$650K to two universities and 3 community colleges to redesign math curriculum with inclusivity, student agency and real-world context focus.
- The SOAR grant that our biology faculty oversaw was at \$35K.
- Applied Programming Experiences (APEX): The APEX program began through a collaboration with and donation from the Center for the Advancement of Women in Technology (CAWT) and San José State University. West Valley College received an \$82k donation from CAWT to implement APEX into our statistics courses. This grant was awarded in September 2024 and it concludes on August 31, 2026.