

# QUALITY ASSURANCE

Quality Assurance Program Learning Outcomes (<https://catalog.csudh.edu/program-learning-outcomes/extended-international-education/master-science-quality-assurance-learning-outcomes/>)

## College of Extended & International Education

### Bachelor of Science

Measurement Science Option

### Master of Science

Manufacturing Option

Service and Health Care Option

## Faculty

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## Program Description

Quality Assurance is an interdisciplinary profession practiced by management personnel who are responsible for planning and assuring the quality of products and services. The career opportunities in this rapidly growing field are excellent. Quality professionals are members of management teams where their specialized skills promote organizational excellence, reduce wastes, and improve existing processes. The traditional applications of Quality as related to product performance have evolved to most every industry, such as healthcare, finance, hospitality, and non-profits.

The online Master of Science in Quality Assurance (MSQA) degree program is designed to prepare professionals in quality, engineering, science, management, health care, government and service industries for career advancement. Topics covered include Total Quality Management (TQM), Six Sigma, ISO 9000, reliability, benchmarking, process improvement, quality control, human factors in quality assurance, measurement and testing techniques, quality project management, productivity, quality function management, and customer satisfaction.

The degree programs are supported by local members of the ASQ- Global Voice of Quality Organization.

## Features

### Undergraduate

The B.S. in Quality Assurance (BSQA) and the B.S. in Quality Assurance with Measurement Sciences option incorporate an interdisciplinary approach that blends the basic sciences, technologies, management principles, quality concepts and statistics. Skills and knowledge in these areas are obtained in the context of a well-rounded learning experience consistent with the University's mission and the needs of industry. The coursework develops problem-solving skills with a customer-focus. An ability to implement continuous improvement of processes, products, and services is a key goal of the Quality professional. For students interested in technical areas of Quality and metrics, an option in Measurement Sciences is offered.

Online and on-site versions of the degree are designed to serve working adults in related quality fields who wish to complete a four year degree. The online and on-site BSQA programs are designed primarily as upper division transfer programs for students who have completed the majority of their lower division general education courses. On-campus attendance

is not required to complete requirements in the online BSQA and BSQA Measurement Science programs.

## Graduate

The Master of Science in Quality Assurance (MSQA) is designed to prepare professionals in quality, engineering, science, and/or management for career advancement. Quality professionals are members of management teams where their specialized skills promote organizational excellence, reduce wastes, and improve existing processes. The traditional applications of Quality as related to product performance have evolved to most every industry, such as healthcare, finance, hospitality, and non-profits. The curriculum is designed to meet the needs and interests of the working professional.

The program of study provides theoretical knowledge and analytical techniques, as well as management and communication skills that will enable the student to function in an active, decision-making capacity in the implementation of policies and practices. A unique feature of the MSQA program is that it gives students the ability to customize their program of study to include their areas of interest. During the course of the program students will acquire knowledge and skills in the following areas: managing a Quality organization; planning and implementing a Quality program; troubleshooting and solving quality problems; incorporating quality concepts and human factors techniques in the design of manufacturing operations; performing vendor surveys and assessing vendor quality; developing and analyzing statistical process control charts; developing and analyzing acceptance sampling plans; design of experiments; design and engineering of reliable products and processes; performing process capability studies; performing quality cost analyses; understanding and working with human behavior in the organization; performing reliability, maintainability, and safety systems reviews; performing quality system audits; and performing statistical studies and analyzing statistical reports. Options for a concentration in traditional manufacturing-focused Quality concepts, as well as applications specific to Healthcare and Service Industries are available.

Online and on-site versions of the degree are available to serve working adults. The degree program is supported by local chapters of the ASQ- Global Voice of Quality Organization.

## Academic Advisement

For general questions about admission or degree requirements for the Quality Assurance programs, students and prospective applicants may contact Student Support Coordinator, Karla Martinez.

For academic advisement, students can contact the MSQA Advising Consultant, Dr. Milton Krivokuca.

## Preparation

The Master of Science in Quality Assurance (MSQA) is designed to prepare professionals in quality, engineering, science, management, health care, government and service industries for career advancement

In order to help manage and lead today's organizations toward the objective of "total quality," an interdisciplinary approach is taken to blend study in management, quality concepts, and statistical tools. The curriculum is designed to meet the needs and interests of the working professional. Relevant theoretical and practical course work, independent study, interaction with fellow students and leading learning experience.

A unique feature of the MSQA program is the opportunity students have to customize their program of study to include areas of personal and professional interest.

Participating in the MSQA course work will help prepare professional to take the examinations leading to the Certified Quality Auditor (CQA), Certified Quality Engineer (CQE), Certified Quality Manager (CQM), and Certified Reliability Engineer (CRE) certifications.

## Admission Requirements

To be admitted to the Master of Science in Quality Assurance program, applicant must meet the following requirements:

1. Meet all CSU Dominguez Hills graduate admission requirement;
2. A baccalaureate degree from a four-year accredited institution is required. An undergraduate major in engineering or science is preferred (please see note below);
3. A grade point average of at least 2.50 in the last 60-semester units of upper division coursework attempted;
4. Good standing at the last institution attended; and
5. Meet all other university admission requirements.

The baccalaureate degree should have included the following:

- 6 semester units of Calculus (integral and differential)
- 3 semester units of Chemistry (general)
- 3 semester units of Physics
- 6 semester units of Mathematical Statistics & Theories of Probability (upper division)
- 3 semester units of Principles of Computer Technology

NOTE: Individuals from other undergraduate disciplines who demonstrate exceptional promise may be admitted to the program, pending completion of additional undergraduate prerequisites courseworks or other demonstrations of competence as determined by the Quality Assurance Academic Program Committee. All special admissions are subject to approval by the Quality Assurance Academic Program Committee.

## Bachelor of Science in Quality Assurance

The Quality Assurance program is currently not accepting students into the Bachelor of Science in Quality Assurance (BSQA). For more information, please contact the Quality Assurance program office.

## Total Course Requirements for the Bachelor's Degree

See the "Requirements for the Bachelor's Degree (<https://catalog.csudh.edu/general-information/baccalaureate-degrees-undergraduate-studies/>)" in the University Catalog for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

### Elective Requirements

Completion of elective courses (beyond the requirements listed below) to reach a total of a minimum of 120 units.

### General Education Requirements (49 units)

See the "General Education (<https://catalog.csudh.edu/general-information/double-counting-general-education-courses/general-education/>)" requirements in the University Catalog and the Class Schedule for the most current information on General Education requirements and course offerings.

### Graduation Writing Assessment Requirement

See the "Graduation Writing Assessment Requirement (<https://catalog.csudh.edu/general-information/graduate-writing-examination/>)" in the University Catalog.

### Minor Requirements

Single field major, no minor required.

### Major Requirements (66 units)

#### Degree Requirements (66 units)

##### A. Lower Division Requirements (29 units)

- BIO 102 General Biology (3)
- CHE 108 Introduction to College Chemistry (5)
- MAT 131 Elementary Statistics and Probability (3)
- MAT 153 Pre-Calculus with Trigonometry (4)
- PHY 120 Elements Of Physics I (4)
- PHY 122 Elements Of Physics II (4)
- QAS 200 Fundamentals of Quality (3)
- QAS 220 Fundamentals of Measurement Science (3)

##### B. Upper Division Requirements (37 units)

- QAS 312 Interpretation of Technical Documentation (3)
- QAS 325 Technical Communications (4)
- QAS 330 Statistical Quality Control and Inspection (3)
- QAS 331 The Manufacturing Process (3)
- QAS 335 Quality Auditing (3)
- QAS 355 Safety and Reliability (3)
- QAS 360 Fundamentals of Lean Manufacturing (3)
- QAS 427 Quality Improvement (3)
- QAS 445 Systems Failure Analysis (3)
- QAS 450 Value Based Quality (3)
- QAS 496 Internship in Quality Assurance (3)
- or
- QAS 498 Directed Research in Q.A. (3)
- QAS 499 Senior Project (3)

### Measurement Science Option (66 units)

#### A. Lower Division Requirements (29 units)

- BIO 102 General Biology (3)
- CHE 108 Introduction to College Chemistry (5)
- MAT 131 Elementary Statistics and Probability (3)
- MAT 153 Pre-Calculus with Trigonometry (4)
- PHY 120 Elements Of Physics I (4)
- PHY 122 Elements Of Physics II (4)
- QAS 200 Fundamentals of Quality (3)
- QAS 220 Fundamentals of Measurement Science (3)

#### B. Upper Division Requirements (37 units)

- QAS 312 Interpretation of Technical Documentation (3)
- QAS 325 Technical Communications (4)
- QAS 330 Statistical Quality Control and Inspection (3)
- QAS 332 Electrical Metrology (3)
- QAS 340 Measurement Uncertainty (3)
- QAS 347 Dimensional Metrology (3)
- QAS 350 Physical Metrology (3)
- QAS 427 Quality Improvement (3)
- QAS 445 Systems Failure Analysis (3)
- QAS 450 Value Based Quality (3)
- QAS 496 Internship in Quality Assurance (3)
- or
- QAS 498 Directed Research in Q.A. (3)
- QAS 499 Senior Project (3)

# Master of Science in Quality Assurance (30 units)

## Admission Requirements

1. To be admitted into the Master of Science in Quality Assurance Program, students must meet the following requirements:
2. Meet all CSU Dominguez Hills graduate admission requirements.
3. A baccalaureate degree from a four-year accredited institution is required. An undergraduate major in engineering or science is preferred. Please see the note below.
4. A grade point average of at least 2.50 in the last 60 semester units of upper division coursework attempted.
5. Good standing at the last institution attended.
6. Meet all other university admission requirements.

The baccalaureate degree should have included the following:

Calculus (integral and differential) (6 units)

Chemistry (general) (3 units)

Physics (3 units)

Mathematical Statistics & Theories of Probability (upper division) (6 units)

Principles of Computer Technology (3 units)

**Note:** Individuals from other undergraduate disciplines who demonstrate exceptional promise may be admitted to the program, pending completion of additional undergraduate prerequisite coursework or other demonstrations of competence as determined by the Quality Assurance Academic Program Committee. All special admissions are subject to approval by the Quality Assurance Academic Program Committee.

## Degree Requirements

1. Complete 30 semester units of approved graduate work.
2. Complete at least 24 semester units in residence.
3. Successfully complete the major courses listed below.
4. Complete all coursework with a grade point average of at least 3.0 (B).
5. Complete a culminating project, thesis, or comprehensive exam.
6. Successfully complete the Graduation Writing Assessment Requirement (GWAR).
7. In addition to the major requirements, students must meet all university requirements for the master's degree. Students should consult the section of the University Catalog entitled "Requirements for the Master's Degree."

MSQA students choose from one of the following two programs. Each student should contact the MSQA coordinator prior to taking classes.

## Master of Science in Quality Assurance (30 units)

### A. Common Courses (9 units)

QAS 511 Quality Function Management and TQM (3)

QAS 515 Human Factors in Quality Assurance (3)

QAS 518 Quality Project Management and Productivity (3)

### B. Manufacturing Option

#### 1. Required Courses (15 units)

QAS 510 Advanced Probability and Statistics (3)

QAS 512 Reliability (3)

QAS 513 Statistical Quality Control and Sampling (3)

QAS 514 Advanced Experimental Design (3)

QAS 516 Measurement and Testing Techniques (3)

### C. Service and Health Care Option

#### 1. Required Courses (9 units)

QAS 530 Statistical Quality Control (SQC) for Service Professionals (3)

QAS 531 Customer Satisfaction and Quality Assurance (3)

QAS 532 Quality Assurance of the Service Delivery Process (3)

### D. Electives (6 - 12 units)

**Students in the Manufacturing Option take 6 units. Students in the Service & Health Care Option take 12 units)**

QAS 521 Process Control and Capability (3)

QAS 522 Applied Systems Reliability, Maintainability and Safety (3)

QAS 523 Software Reliability (3)

QAS 525 ISO 9000 & The Audit Function (3)

QAS 526 Supplier Quality Assurance (3)

QAS 527 Quality Measurement (3)

QAS 534 Change Management (3)

QAS 535 Lean Manufacturing (3)

QAS 536 Six Sigma Principles and Applications (3)

QAS 537 Quality Function Deployment: Understanding Customer Requirements (3)

QAS 538 Evaluation and Outcome Analysis for Healthcare Delivery (3)

QAS 539 Good Manufacturing Practices (3)

QAS 540 Food and Drug Law (3)

QAS 541 Biomedical Quality Control Methods (3)

QAS 542 Risk Management in FDA Regulated Industries (3)

QAS 594 Ind Study In Assurance Science (1-4)

QAS 595 Special Topics by Directed Study: Quality Assurance Applications (3)

QAS 598 Directed Research (3)

QAS 599 Project (3)

### E. Capstone

Comprehensive Exam