# WATER QUALITY MANAGEMENT (AAS)

Degree: Associate of Applied Science
Major: Water Quality Management
Program Code: 1365

## About This Major . . .

The Water Quality Management Program will prepare students for entry level employment as technicians in the water processing industry. Water quality technicians work in teams to operate drinking water treatment systems and wastewater treatment systems. The workers plan, test for quality, operate complex equipment to acquire and deliver high quality drinking water or process waste water for return to the environment.

This program will provide the student with an understanding of the regulatory expectations, the science involved in meeting regulatory expectations, the equipment used to process water, and the systems management skills necessary to be a successful employee in the water processing industry. The industries interested in hiring graduates of this program are the public drinking water utilities and the wastewater treatment systems.

For more information on what you can do with this major, visit WCCC's Programs of Study (https://www.coloradomesa.edu/wccc/programs/) page.

All CMU/WCCC associate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, quantitative fluency, communication fluency, critical thinking, personal and social responsibility, and information literacy. In addition to these campus#wide student learning outcomes, graduates of this major will be able to:

1. Apply business communication using listening, verbal and written, and electronic forms that are needed for entry level employment. (Communication)
2. Apply Mathematical and applied physics concepts for industry to meet employment requirements (Quantitative Fluency)
3. Research, evaluate, synthesize and apply information/data relevant to business, sciences, and technical careers. (Critical Thinking)
4. Demonstrate knowledge of terminology, symbols, business practices, and principles and application of associated technical skills. (Specialized Knowledge)
5. Perform the necessary applied skill sets to fulfill the needs of entry level employment. (Applied Learning)
6. Demonstrate ethical, civic, and work place responsibility as part of professional behavior. (Specialized Knowledge)

## Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

**To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select 'Print Options.'** This will give you the options to either 'Send Page to Printer' or 'Download PDF of This Page.' The 'Download PDF of This Page' option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

## Institutional Degree Requirements

The following institutional degree requirements apply to all CMU and WCCC Associate of Applied Science (AAS) degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 60 semester hours minimum.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/WCCC.
- 2.00 cumulative GPA or higher in all CMU/WCCC coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 20 semester credit hours for an AAS degree.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

### Specific to this program:

- 65 semester hours total for the AAS, Water Quality Management.
- A minimum of 16 semester hours taken at CMU in no fewer than two semesters.

## Essential Learning Requirements

(17 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

| Code | Title | Semester Credit Hours |
|---|---|---|
| **Communication** | | |
| ENGL 111 | English Composition I-GTCO1 | 3 |
| Select one of the following: | | 3 |
| ENGL 112 | English Composition II-GTCO2 | |
| SPCH 101 | Interpersonal Communications | |
| SPCH 102 | Speechmaking | |
| **Mathematics** | | |
| MATH 108 | Technical Mathematics (or higher) | 3 |
| **Other Essential Learning Core Courses** | | |

| | | |
|---|---|---|
| CHEM 121 | Principles of Chemistry-GTSC1 | 4 |
| CHEM 121L | Principles of Chemistry Laboratory-GTSC1 | 1 |
| Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course | | 3 |
| Total Semester Credit Hours | | 17 |

[1] MATH 108 is a 4 semester credit hour course; however, if a student completes a higher-level, Essential Learning eligible Mathematics course a 3 semester hours, that course would fulfill the Mathematics Essential Learning requirement.

# Other Lower Division Requirements

| Code | Title | Semester Credit Hours |
|---|---|---|
| **Wellness Requirement** | | |
| KINE 100 | Health and Wellness | 1 |
| KINA 1XX | Activity | 1 |
| Total Semester Credit Hours | | 2 |

# Program Specific Degree Requirements

(46 semester hours, must earn a grade of "C" or better in each course.)

| Code | Title | Semester Credit Hours |
|---|---|---|
| WQMS 100 | Introduction to Water Quality | 3 |
| WQMS 105 | Specific Calculations for Water Quality Management | 4 |
| WQMS 106 | Mechanical/Physical Treatment | 3 |
| WQMS 109 | Water Distribution | 3 |
| WQMS 116 | Conventional Surface Water Treatment | 3 |
| WQMS 118 | Wastewater Collection Systems | 3 |
| WQMS 119 | Basic Water Quality Analysis | 4 |
| WQMS 126 | Safety and Security Systems | 3 |
| WQMS 127 | Water Quality Utility Management | 3 |
| WQMS 150 | Troubleshooting in Water Quality | 3 |
| WQMS 202 | Small Water Systems Operation and Maintenance | 3 |
| WQMS 203 | Water Quality Small Wastewater Systems | 3 |
| WQMS 212 | Drinking Water Regulations | 4 |
| WQMS 216 | Biological and Bacteriological Water Quality Analyses | 4 |
| Total Semester Credit Hours | | 46 |

# Suggested Course Plan

Due to a potential variation in semester credit hours for the Essential Learning Mathematics credits, the following sequencing results in variable credit hours; however, students in this major must complete a minimum of 65 semester credit hours, including satisfactory completion of all required courses, for satisfactory completion of degree.

| | | |
|---|---|---|
| **First Year** | | |
| **Fall Semester** | | **Semester Credit Hours** |
| ENGL 111 | English Composition I-GTCO1 | 3 |
| MATH 108 | Technical Mathematics | 4 |
| WQMS 100 | Introduction to Water Quality | 3 |
| WQMS 106 | Mechanical/Physical Treatment | 3 |
| WQMS 109 | Water Distribution | 3 |
| KINE 100 | Health and Wellness | 1 |
| | Semester Credit Hours | 17 |
| **Spring Semester** | | |
| WQMS 118 | Wastewater Collection Systems | 3 |
| WQMS 119 | Basic Water Quality Analysis | 4 |
| WQMS 105 | Specific Calculations for Water Quality Management | 4 |
| CHEM 121 & 121L | Principles of Chemistry-GTSC1 and Principles of Chemistry Laboratory-GTSC1 | 5 |
| | Semester Credit Hours | 16 |
| **Second Year** | | |
| **Fall Semester** | | |
| Select one of the following: | | 3 |
| ENGL 112 | English Composition II-GTCO2 | |
| SPCH 101 | Interpersonal Communications | |
| SPCH 102 | Speechmaking | |
| WQMS 127 | Water Quality Utility Management | 3 |
| WQMS 150 | Troubleshooting in Water Quality | 3 |
| WQMS 202 | Small Water Systems Operation and Maintenance | 3 |
| WQMS 203 | Water Quality Small Wastewater Systems | 3 |
| KINA XXX | Activity | 1 |
| | Semester Credit Hours | 16 |
| **Spring Semester** | | |
| WQMS 116 | Conventional Surface Water Treatment | 3 |
| WQMS 212 | Drinking Water Regulations | 4 |
| WQMS 126 | Safety and Security Systems | 3 |
| WQMS 216 | Biological and Bacteriological Water Quality Analyses | 4 |
| Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course | | 3 |
| | Semester Credit Hours | 17 |
| | Total Semester Credit Hours | 66 |

# Advising and Graduation Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

# Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at http://www.coloradomesa.edu/registrar/graduation.html.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.