

Minnesota North College – Vermilion Campus

Water Operations

Academic Year 2022-23
Diploma (34 credits)

| FALL SEMESTER | 19 Credits | Prerequisites | Credits | Hr Lc/Lb |
|--|------------|----------------------|---------|----------|
| BIOL 1561 – General Biology of Cells (MnTC Goal 3) | | (CLR) | 4 | (3/2) |
| CHEM 1200 – Introduction to Chemistry (MnTC Goals 3 & 10) | | (MATH0200) | 4 | (3/2) |
| <u>OR</u> CHEM 1521 – General Chemistry 1 (MnTC Goal 3) | | (MATH1220) | | |
| GENS 1171 – Computer Applications: Word Processing | | | 1 | |
| GENS 1172 – Computer Applications: Spreadsheets | | (MATH0100) | 1 | |
| WQAL 1651 – Water Treatment | | (CLR, CLW, MATH0100) | 3 | |
| WQAL 1652 – Wastewater Treatment | | (CLR, CLW, MATH0100) | 3 | |
| WQAL 1656 – Environmental Compliance | | (CLR, CLW, MATH0100) | 3 | |

| SPRING SEMESTER | 15 Credits | Prerequisites | Credits | Hr Lc/Lb |
|--|------------|----------------------|---------|----------|
| BIOL 1562 – General Biology of Organisms (MnTC Goals 3 & 10) | | (BIOL1561) | 4 | (3/2) |
| PDEV 1130 – Employment Strategies | | | 1 | |
| WQAL 1255 – Water Resource Field Visits | | | 2 | (0/4) |
| WQAL 1257 – System Hydraulics | | (CLR, CLW, MATH0200) | 3 | (2/2) |
| WQAL 2265 – Water & Wastewater Analysis I | | (CHEM1200 or 1521) | 5 | (2/6) |

Additional Recommended Courses

WQAL 2220 Water Resources Internship (WQAL1651; WQAL1652; WQAL2265; 2.0 GPA)

Note: WQAL 2220 Water Resources Internship must be completed if the graduate seeks application of the full educational equivalency of one year experience toward Minnesota Department of Health and Minnesota Pollution Control Agency Class D Operations Licensure.

Program Description

The Water Operations Diploma is designed to prepare students for entry-level positions with the potential and skills to advance to supervisory and management positions in water operations, wastewater treatment, environmental laboratory work, equipment maintenance, public health work, and environmental engineering technical work. Upon completion of this diploma, students are eligible to take the Class D Water and Wastewater Operators license examination.

Occupational Titles

Water quality work opportunities are excellent and are only projected to improve. Everyone needs clean water and the demand for qualified employees is in high demand and projections for the foreseeable future are excellent. Employment opportunities currently exceed supply. Work normally focuses on providing clean water – for public drinking, and solving pollution issues in cities, industries, and other manufacturing and human activities. Occupational titles include Water Treatment Operator, Wastewater Treatment Operator, Water Consultant, and positions are available in regulatory work, chemical/process manufacturing, education, and research.

Additional Comments:

This Degree is designed so the students complete their diploma after one year (including the optional summer water field experience) and enter the work field.

Program Learning Outcomes

Graduates of this program will:

1. Demonstrate the principles and responsibilities of managing water resources.
2. Obtain and utilize local, state and federal laws to demonstrate how policy changes affect the environment.
3. Ability to work as an individual and in teams to collect information, identify possible alternatives and select the best solution to hydrologic/hydraulic situations.
4. Ability to describe important water concepts relating to laboratory analyses, water/wastewater operations, hydraulic principles, watersheds, and environmental law and policy.
5. Ability to apply technology and fundamental principles of water resource technology through research reports, laboratory procedures, and field applications.
6. Ability to use the scientific method: hypothesize, test, evaluate and select an appropriate solution through theory and practical applications.

Water Operations Diploma

Program Faculty Contact

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