



Advanced Water Math Course Syllabus

Purpose

This course is designed to teach you Advanced Water Math Concepts.

Topics

Advanced Water Math

Flow Problems

Chemical Dose Problems

Reservoir Problems

Coagulation and Flocculation Problems

Sedimentation Problems

Filtration Problems

Disinfection Problems

Laboratory Problems

CEUs (Contact Hours)

Upon completion of this course, you will receive a certificate for .8 CEUs (8 contact hours).

Completion Requirements

In order to receive [IACET CEU](#) credit for this course, you must complete the following:

- Complete each individual lesson module by watching the video lecture, completing the lesson handout, and passing the lesson quiz. A score of 70% or higher is required to pass each quiz.

Once you have completed these elements, your course completion certificate will be automatically placed into your learning account for printing/downloading. It will remain in your learning account even after your course access has expired.

Learning Objectives

Flow Problems

Upon completion of this lesson the student will be able to:

- Recall the conversion factor between MGD (million gallons per day) and gpm (gallons per minute).
- Demonstrate how to calculate problems using the MGD to gpm conversion factors
- Recall the conversion factor between MGD and CFS (Cubic Feet Per Second)
- Demonstrate how to calculate problems using the MGD to CFS conversion factors.

Chemical Dose Problems

Upon completion of this lesson the student will be able to:

- Describe what units are used in Polymer and Alum Dosing
- Describe what units are used in chemical feed pump calibrations and settings
- Explain the jar testing process
- Demonstrate how to calculate jar testing problems
- Explain chemical feed system calibrations
- Demonstrate how to calculate chemical feed calibration problems
- Demonstrate how to calculate feed pump settings in percent stroke

- Demonstrate how to calculate chlorinator settings

Reservoir Problems

Upon completion of this lesson the student will be able to:

- Describe what units are used in calculating the storage volume of a reservoir
- Demonstrate how to calculate reservoir storage volume problems
- Describe what units are used in calculating copper sulfate chemical dose problems
- Demonstrate how to calculate copper sulfate dosing problems

Coagulation and Flocculation Problems

Upon completion of this lesson the student will be able to:

- Demonstrate how to accurately calculate how many pounds of coagulant are used
- Demonstrate how to accurately calculate the proper dose of a coagulant
- Demonstrate how to accurately calculate the percent concentration of a stock solution
- Demonstrate how to accurately calculate percent of coagulant dilution

Sedimentation Problems

Upon completion of this lesson the student will be able to:

- Define what sedimentation basins do
- Demonstrate how to calculate detention time problems
- Recall what units are used in detention time
- Demonstrate how to calculate overflow rate problems (surface loading rate problems)
- Recall what units are used in overflow rate
- Demonstrate how to calculate flow velocity problems
- Recall what units are used in flow velocity
- Demonstrate how to calculate weir loading problems
- Recall what units are used in weir loading

Filtration Problems

Upon completion of this lesson the student will be able to:

- Define what a filter is and what it does
- Demonstrate how to solve filtration rate problems
- Demonstrate how to solve level drop rate problems
- Demonstrate how to solve filter flow rate problems
- Demonstrate how to solve unit filter run volume (UFRV) problems
- Demonstrate how to solve backwash flow problems
- Demonstrate how to solve flow to level increase conversion problems
- Demonstrate how to solve backwash water used problems
- Demonstrate how to solve backwash water to finished water percent problems

Disinfection Problems

Upon completion of this lesson the student will be able to:

- Define what units and formulas are used in disinfection problems
- Demonstrate how to solve chlorine dose problems
- Demonstrate how to solve chlorine demand problems
- Demonstrate how to solve chlorine usage problems
- Demonstrate how to solve hypo chlorinator flow rate problems
- Demonstrate how to solve hypochlorite solution strength problems

- Demonstrate how to solve hypochlorite dilution problems
- Demonstrate how to solve average pounds per day problems
- Demonstrate how to calculate chlorine supply in days

Laboratory Problems

Upon completion of this lesson the student will be able to:

- Define what units and formulas are used in laboratory problems
- Demonstrate how to solve temperature conversions between Fahrenheit to Celsius
- Demonstrate how to solve for the mean and median values of a data set
- Demonstrate how to solve removal efficiency
- Define reservoir vocabulary
- Discuss stratification in reservoirs
- Relate problems with anaerobic conditions
- Discuss potential problems algae can cause
- Apply algae control techniques using copper sulfate

Support

Students can contact our student support staff with any course-related, content-related or technology-related inquiries.

Our office hours are Monday-Thursday, 9-5 PST, and Friday 9-12 PST.

Contact Info

Phone Number: (661) 874-1655

General Course Inquiries: Info@americanwatercollege.org