

2024 Water Reuse Academy Environmental Engineering Program University of Colorado at Boulder

Environmental engineers have played an important role in modern society by providing safe drinking water and protecting the environment. Now, due to population growth and climate change, we are facing mounting challenges with the sustainability of our water supplies. Amongst practicing professionals it is well understood and agreed that water reuse needs to be a larger part of water supply systems. The **time for water reuse** on multiple scales for non-potable to direct potable reuse **is now**. For this vision to be realized, there is a need for water engineers to be grounded not only in engineering fundamentals, but the breadth and communication skills to navigate water supply issues, and the complexities of dealing with multiple stakeholders.

The mission of the [Water Reuse Program](#) at the University of Colorado at Boulder is to educate students through coursework and research to be successful water reuse professionals. We currently have teamed with the Water Research Foundation (Project #5197) and others on a multi-year, multi-million-dollar U.S. EPA research grant (84046201-0) “Unlocking the Nationwide Potential of Water Reuse.” In addition, we are pleased to announce the Water Reuse Academy, which will become an annual in-person 2- to 3-day event in Boulder directed to **practicing professionals**. It will cover non-potable reuse and direct and indirect potable reuse.

Our first offering, impacted by our caution for COVID, was a remote 5-hour event in March of 2021 designed to educate young professionals and practicing engineers in the regulations, treatment technologies and implementation of water reuse treatment. It was attended by 30 professionals from 10 states and 3 countries.

Now, we are excited to offer a 1.5-day CU [Water Reuse Academy](#) to be held on March 14-15th, 2024 at the University of Colorado-Boulder SEEC facility, after the WaterReuse Symposium (Denver). We chose these dates to facilitate travel to and attendance at the Academy. This limits the program to 1.5 days, thus we have decided to focus on potable reuse with emphasis on raw and finished water quality concerns, operational considerations, and treatment process fundamentals linked to design. In future offerings we will add management and planning.

Attendees must have a basic understanding of water and wastewater treatment, with either a degree in engineering or at least five years of professional experience in treatment. The course is taught by CU Boulder faculty and affiliated faculty. Our keynote speaker, Doug Owen, will use his experience with the San Diego Pure Water Program to address big picture issues and approaches. Registration is \$1,000 and is limited to 25 attendees. All instructional costs, a set of course notes, and meals (lunch and dinner on the 14th and breakfast and lunch on the 15th) are included. Lodging is not included. The deadline for registration is February 28th, 2024. Cancellations made up until that date and will receive a refund less a \$100 cancellation fee. Registrations will be confirmed by email. Participants can register [here](#). For more information contact [Anna Segur](#).

What you will learn about potable water reuse in this spring 2024 course:

- An overview of water reuse, drivers and the regulations and guidelines that guide it.
- Which microbiological and chemical contaminants are of concern.
- The impact of upstream wastewater treatment on reuse water quality and operational concerns
- Process fundamentals, design criteria and implementation of treatment technologies:
 - Oxidation – ozone, UV and AOP
 - Membranes – microfiltration, nanofiltration and reverse osmosis
 - Advanced treatment use of coagulation, biofiltration, activated carbon adsorption and ion exchange

Water Reuse is our Future!



Environmental Engineering
UNIVERSITY OF COLORADO BOULDER

Water Reuse Academy
University of Colorado - Boulder (CU-B)
Environmental Engineering (EVEN) Water Reuse Program (CUWR)
Sustainability, Energy and Environment Community (SEEC) Facility

Thursday March 14th through Friday March 15th, 2024

Registration \$1,000 for more information contact [Anna Segur](#).

Day 1 –½ day - Starts at noon after WaterReuse Symposium		all times approximate
Check-in	12:00	Instructors
Lunch	12:30	Scott Summers/ Bill Becker/ Doug Owen
• Course Welcome Schedule and Arrangement	12:45	Bill Becker
• Overview, Drivers, and Regulations	1:30	Cresten Mansfeldt
• Microbial contaminants of concern	2:30	Eric Peterson
• Chemical contaminants of concern and DBPs	2:45	
Break	3:00	Ben Stanford
• Operational considerations and use of HACCP	4:00	Sherri Cook/Doug Owen
• Linking reuse water quality to WW treatment	4:45 – 5:30	Sheldon Masters
• Distribution systems - corrosion		
Dinner – reception - off-site	6:30 – 8:00	Doug Owen
• San Diego Pure Water Program		
Day 2 – Treatment Processes		all times approximate
Breakfast	7:30	
• Microfiltration and ultrafiltration	8:00	Tony Straub
• Nanofiltration and reverse osmosis	9:00	Tony Straub
Break	10:00	
• Ozone oxidation/ disinfection	10:30	Fernando Rosario-Ortiz
• UV Disinfection	11:30	Karl Linden
Lunch	12:30	
• Advanced oxidation	1:30	Karl Linden
• Activated carbon adsorption	2:30	Scott Summers
Break	3:30	
• Biological filtration	3:45	Scott Summers
• Ion exchange	4:15	Julie Korak
• Coagulation	4:45	Julie Korak
Closing	5:00	Scott, Bill, Doug

All instructors are CU Boulder faculty and affiliated faculty.

Professional development hours (PDHs) are available. The PDHs will be issued by a NYSED Approved Sponsor. For states that have continuing education requirements, most accept approved New York courses.