

Course Introduction

JIM FOGG: Hello, I'm Jim Fogg, a hydrologist and training coordinator at the BLM's National Training Center in Phoenix. As BLM's surface water specialist for nearly 20 years and as a training coordinator, I've investigated a lot of hydrology training courses through the USGS Corps of Engineers, Forest Service BLM, and other federal agencies as well as numerous university courses. And I can say with confidence that the course you're about to begin is one of the best surface water hydrology short courses available in the entire federal government.

USGS course on basic hydraulic principles of open channel flow is a foundational course of the surface water program of the water resources discipline. This class starts with the basic properties of water and develops basic concepts of conservation of mass, momentum, and energy to teach you how to analyze and describe conditions of open channel flow.

Now if you have a degree in Civil Engineering, what we'd cover in the first half of this class is going to look a lot like things you saw in fluid mechanics and hydraulics, your junior year of college. If you just graduated, you'll be able to work quickly through several of the early units. If it's been a few years since that college training, you'll appreciate the comprehensive review of basic principles in the first half of the class. And if you, like me, received your college training in another field, you'll appreciate this primer on basic principles to get you started.

In the second half of this course, you will learn how to apply these basic principles to actual open channel flow calculations. You will learn how to estimate water surface profiles, flood elevations, and flow through weirs, culverts, and other contracted openings. But the key to this course is not watching these video presentations; the key to learning in this class is working the problems. With each of the 18 lessons in this class is a set of problems designed to reinforce the concepts taught in that lesson. I think it's safe to say that if you do not work the problems, you will retain very little from this course. Conversely, if you do work the problems, you will learn a great deal and you will have an excellent reference to go back to to refresh learning in the future.

Now I'd like to take a second to introduce the instructors for this course. To my left is Dr. Robert Holmes, our lead instructor.

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Bob is a national flood specialist for the USGS Office of Surface Water and is presently located in Rolla, Missouri. Along with Bob is Charles Berenbrock. Charles is a national surface water modeling specialist for the USGS Office of Surface Water and he's located in Reston. Our third instructor is Rick Huizinga, surface water hydrologist from the Missouri Water Science in Rolla. Between the three of these instructors, they have well over 50 years of experience both conducting open channel flow studies and teaching this course.

Now I'd like to give you some suggestions for taking an outline course such as this one. First, all of these instructors do a great job of teaching the subject, well, calculus. This is not a trivial course. You'll need to give this material your undivided attention when viewing the videos and working the problems. Be sure to do it when you're at your best and can concentrate without interruptions. Forward your phone, disable your audible e-mail alerts, put up a "do not disturb" sign. You might want to use headphones and take frequent breaks.

Second, don't try to do the entire course in one week. Since each of the 18 lessons will require between one and three hours to view the videos and work the problems, we suggest doing two or three lessons a week much as you would a college course.

Finally, don't be afraid to get help if you need to work the lesson exercises. Consider viewing the course with a co-worker or a friend so you can discuss the content. Pause the video if you need to think or talk about what you just heard. If you get stuck on a problem, you might want to solicit help from a more experienced hydrologist in your district, region, or headquarters office.

Now select the Resources tab to download the PowerPoints and textbook for the class. You might want to print the PowerPoint to take notes on. The basic hydraulics textbook is also available and you will want to refer to it frequently. Contact information for the instructors can also be found under the points of Contact tab. Don't hesitate to contact them if you have any questions. Now, good luck with the course.