Hello All,

We look forward to seeing you at the upcoming workshop! Here is some information to help you get prepared.

**Key items**

** Bring a laptop, if you can. It is useful (but not essential) if you have ARC-GIS. Hopefully at least one-third to half the class will have GIS on their computers. We will be using MS Excel extensively.**

** We will walk in streams. Sport sandals, river shoes, old sneakers with shorts work well. Waders OK but not essential. Ankle depths; knees max. Chilly water on hot days is refreshing.**

** Do homework before class. Really. It will make a huge difference in what you get out of the class. Really. We’re not kidding. Turning in homework is required for those taking the class for credit or for Continuing Education Units (CEU).**

**What to Bring**

We will have field trips on four days of the course. Three of them are picnics-with-activities and should not be too demanding. On Friday, we will be walking outside for 2.5 – 3 hr. It can be hot and sunny (upper 80s and 90s), so please bring sun protection. Beverages will be provided but we encourage you to bring a water bottle. For the field trips, please bring clothing and shoes that you can get wet (e.g. shorts and sandals). We'll be wading in streams. It cools down in the evening, so pack a jacket. It probably won't rain, but we’re in the mountains, so you never know.

Those unable to wade in streams or traverse rough ground can easily be accommodated. None of these field trips is an athletic event and all will be mostly accessible. *We will make it work!*  

**Course Location, Schedule, and Logistics**

The class will meet in NR 105. This is a lecture room on the ground floor of the Natural Resources Building (map). It is large enough for us to spread out and be comfortable. The NR building is equidistant between the Big Blue Parking Terrace and the Gateway Parking Terrace.

The course begins at **8:30 am Monday-Thursday.** On **Friday,** we will meet at **7:30 am** because we have a long trek down to the Provo R. On Monday – Thursday, there will be coffee, juice and light snacks available throughout the day to help keep your energy and blood-sugar levels up. We will provide lunch on four days (every day except Thursday) and dinner on Monday evening. Tuesday, Wednesday, and Thursday evenings there will be homework and you will be on your own for dinner.
On Friday, we will be traveling to the Provo River Restoration Project in the Heber Valley and to the Provo Delta Restoration Project in Provo, Utah. We will aim to finish up at 3:30p. The Provo River Delta Project is about an hour from the Salt Lake City Airport without traffic (but there will be heavy traffic). The location of the end of the field trip is Utah Lake State Park, 4400 W Center St, Provo, UT 84601. You can easily plan on flying out Friday evening, if needed. A flight after 7:00 should work; 6:30p is just beginning to get tight. In the past, participants with their own vehicles have driven them to the field on Friday and then left straight for the airport. We will arrange a ride to the airport if you need one. There will also be vehicles going back to Logan.

Travel to Logan: There is a good shuttle from Salt Lake Airport (SLC) to Logan: http://www.saltlakeexpress.com/

Do I need a car? It is perfectly reasonable to do this whole thing without a car, particularly if you are walking distance to campus. The free city/regional bus has good, frequent service to campus. https://cvtdbus.org/

Weather: We expect hot and sunny with highs in the 80s and 90s but one can never be sure. Please continue checking forecasts at www.weather.com (zip code for USU is 84322).

What about you?

If you have a particular sediment or stream restoration problem, we would love to hear about it in advance. Describe it in a page or less, send a few images. Where is it? What are the key concerns, goals, objectives? Are there aspects that make this project unique or less straightforward from an assessment or design perspective? Are there specific problems/questions you are grappling with? We can talk about it during drive time or in the evening, and maybe we can point out connections during class. I can assure you that we will not be reading your massive final project report between now and the class, so package (market) the challenge in a page or less for maximum interest.

Preparing for the course … homework!

In planning the course, we always face hard decisions about what to include as well as how much. The most important thing is that you develop a strong, flexible, and robust understanding of those parts that are most important to you. For 99% of you, your best chance for success is to study some of the material in advance. Seriously. Time spent in advance will amplify the benefits you get from the course. Instead of grasping at what goes whizzing by in class, you will be able to engage with it, make connections, and make it your own. We could teach much, much less in the class, go through it very slowly, and ensure that everybody leaves with a few basic points. We aim a bit higher, because we want to provide enough material to enable you to build on basic concepts with insight, understanding, and confidence. The only way this can work is if you understand some vocabulary and concepts in advance.

Important elements of the course include water and sediment supply, hydraulics, and sediment transport. Questions we will be asking include: How do we estimate sediment supply to a stream
reach? How do we estimate flow and sediment transport rate in streams? How do we use those estimates in stream channel design? All this stuff will be covered in class, but the pace will be quick. If you are seeing it for the first time in class, your ability to really use the material, to make it your own, is likely to be pretty limited. If you come prepared, you can spend more of your time at the course understanding how this technical material is applied.

(0) In the past, we have used HEC-RAS to calculate flow profiles in existing and design channels. I debate every year whether it is worth it to use class time to get people up to a minimum capability with RAS. This year, we have added a couple new sediment exercises and we will leave RAS on the side. We will discuss in class how, when, and under what circumstances hydraulics models are useful.

(a) We will be working on measuring and calculating sediment transport. Everything you need to know is in a primer (Wilcock et al. 2009) published by the USFS STREAM team. You should read it through before class (particularly Chs. 1, 6, 7).

Estimated prep time: one to two evenings (of course, you won't be able to put it down)


(b) We will be working on how to develop estimates of sediment supply. Be sure to read Grabowski et al. 2014 for background on the basic concepts, analyses and available datasets.

Estimated prep time: one evening


Many of you will be familiar with the basic concepts, but the following three readings are optional for those of you who would like to brush up or read about certain topics in more detail.


Computers

We will be doing hands-on activities and you should bring a laptop. (If you are not able to bring a laptop, please let us know and we will try to arrange one for you.) Here are the software requirements:

(1) Windows OS.

(2) Microsoft Excel. *If you haven’t used Excel in a long time, you might dust it off and take it out for a spin. Most of the exercises will use Excel.*

(3) ArcGIS. ARC-GIS is optional; you can pair with someone else if needed. We can provide a copy with a 1-yr license, if you are interested.

(4) Google Earth.

What to do in the area

There are tons of outdoors things to do in Logan and around the grater Cache Valley. We won't go into detail - just use Cache Valley or Uinta-Wasatch-Cache National Forest as a search term and you will be in good shape. If you can build in a weekend or two, you can take in desert, red rock, Rockies, Tetons, …

That’s enough for now. Go do your homework,

Peter (for Patrick, Tyler)

p.s. We will be posting stuff on a course web page as we go along. There are always changes to the course content, but last year’s material (available on web page) gives you a good idea of where we are going, in case you finish your homework and just have to do more.