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. Install HEC-RAS on it. Learn the basics of RAS. Detail below.**

** 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. 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 evenings, so pack a jacket. It probably won't rain, but we are in the mountains, so you never know.

**Course Location**

The course will meet in the Merrill-Cazier Library (the main library) on the USU campus. The classroom (Room 101) is near the front entrance of library, which is on the east side of the building. If you need to park, the nearest garage (northwest of the library, the big blue terrace) is currently closed for construction (we will let you know if it opens up). Currently, public parking is in the Aggie Parking Terrace on 700 E on the very west side of campus. If you are staying at the University Inn, which is between the library and the parking garage, parking is in the open lot north of the Inn. More location information and maps at the course website [https://qcnr.usu.edu/courses/sed_workshop_logistics](https://qcnr.usu.edu/courses/sed_workshop_logistics)

**Course Schedule**

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 will be finished in the afternoon about 3:30. The Provo River Restoration Project is about an hour from the Salt Lake City Airport. You can easily plan on flying out that evening, if needed. A flight after 6:30 should work. In the past, participants with their own vehicles have driven them to the field on Friday and then left straight from Heber Valley. We will arrange a ride to the airport if you need one. There will also be vehicles going back to Logan.

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 to do this 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 flies 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 do two things in advance: understand some vocabulary and concepts and familiarize yourself with some of the software we will be using.

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.

(a) We will use HEC-RAS to calculate flow profiles in existing and design channels. Some will be familiar with RAS; the rest can easily develop sufficient familiarity in advance. Here's how:
Download HEC-RAS v 5.0 (Any 5.0 is OK; latest is 5.0.7). Follow download instructions at http://www.hec.usace.army.mil/software/hec-ras/downloads.aspx

Install RAS. Launch RAS. With RAS running, you can access documentation under the Help menu. You should work through Chapter 5 (Working with Projects) of the User's Manual. You should also launch the project "Critical Creek" (the first project in the Applications Guide) and poke around.

Again, we WILL be using RAS in the design exercise. We will also spend Tuesday afternoon doing a RAS-based exercise. If you have not used RAS, you can get up and running and become competent … if you get rolling before class.  *Estimated prep time: one to two evenings*

(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.


(c) 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)*

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) HEC-RAS

(3) Microsoft Excel

We will work in groups of 3 on a design project. It will be helpful, but not mandatory, if somebody in each group has MS PowerPoint and ArcGIS or Google Earth. ArcGIS is optional and we can provide a copy with a 1-yr license, if you are interested.

Travel Arrangements

If you have not made arrangements for travel and accommodations, well, get on it! Logistics information at https://qcnr.usu.edu/courses/sed_workshop_logistics.

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 staying at University Inn (which is a drop-off point for the shuttle). If you do this, we will get you back to SLC (or Logan) on Friday after class.

Weather

We are expecting the weather to be hot and sunny with highs in the 80s and 90s but we can never be sure. Please continue checking forecasts at www.weather.com (The zip code for USU is 84322).

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,

p.s. We will be getting stuff posted shortly before the class on the course website. There are always new parts to the class. Nonetheless, 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.