Fluvial Geomorphology: the Geomorphology of Streams and Rivers
(version 1.0)

Fall 2016

Classroom: ENGR206
GEOL/WATS 5150/6150

Instructor: John (Jack) C. Schmidt

Office Hours
Schmidt: Tu, Th 2p-4p, BNR 349, jack.schmidt@usu.edu, 435-797-1791

All lecture topics are listed below, although there will be some variation as the semester proceeds. Assigned readings are listed in bold with a key to the readings at the bottom. Additional readings will be assigned as the semester proceeds.

Course Fees: $150 for field trips

Topics Covered


[A] 9/12 – Field lab: Measurement of cross-sections, longitudinal profiles, and back calculation of roughness: Blacksmith Fork above UP&L’s dam near Hyrum, UT (USGS gaging station 10113500)

[5] 9/13 – Sediment in channels; incipient motion and the Shields equation [W: 1-5, 8-20; W-STSediment]


[B] 9/19 – Field lab: Field data useful in estimating bed entrainment and bed material transport: Cub River upstream from Franklin, ID

[8] 9/22 – Sediment transport concepts

[9] 9/27 – Bedrock channels


[D, E, F] 10/7-9 3-DAY FIELD TRIP WEEKEND – Field lab: Sedimentology and geomorphology of the Green River in Grey Canyon and San Rafael River


[14] 10/13 -- Channel size; hydraulic geometry; effective discharge; the bankfull channel [L: 126-147, 168-182] [Wolman_Miller_1960; Andrews_1980; L: 148-167]

[G, H] 10/15 – SATURDAY -- Field lab: Field determination of the bankfull channel and bankfull discharge: Big Creek near Randolph (USGS gage 10023000)

[15] 10/18 – Midterm

10/20 – NO CLASS (Friday class schedule)

[16] 10/25 -- suspended sediment transport; floodplain forms [B/F: 108-118; B: 260-327; Li_et_al_2015; M/S: misc; D: misc]


[18] 11/1 – Controls on channel planform; wandering and braided rivers [K: 230-241; B: 199-202]

[19] 11/3 – Longitudinal profiles at large and small scales [Schumm_Lichty]

[20] 11/8 -- Channel behavior and channel change [B/F: 17-52]

[21] 11/10 – Applied geomorphology and river management/restoration