



Study Rivers This Spring

River Assessment and Restoration – Field Methods

CE 5995 - River Assessment and Restoration (3 credits) or
CE 7995 - River Assessment and Restoration (3 credits)



Description: Students will learn field methods to assess rivers and watersheds. A considerable portion of this class will be spent in the field where students will learn basic surveying techniques and how to apply them to the collection and analysis of river cross-sections and longitudinal profiles. Other field methods will include assessing bed roughness with the Wolman pebble count, measurement of plan-form geometry (meander wavelength, meander radius of curvature, sinuosity, beltwidth, etc.) and the field-identification of key geomorphic features such as bankfull elevation, abandoned floodplains, pools, riffles and mid-channel and transverse bars. Field measurements will be made to calculate the Bank Erosion Hazard Index (BEHI), Near-Bank Stress Index and other measures of stream stability. Students will learn how to monitor a river for bank erosion with the installation of bank pins and

for riverbed aggradation/degradation by installing scour chains. Lastly, students will learn about the evolutionary process that rivers go through and will be able to determine where a river of interest falls into this evolutionary spectrum.

Why should a biology or geology student take this class? The ecological systems that biologists and geologists work to preserve and restore are at the mercy of the physical processes of hydrology and sedimentation. Being able to quantify these processes using the methods learned in this class will give the biologist and geologist an understanding of the stressors that have degraded the ecosystem and insight into how to best restore the ecological function of a stream.

Instructor: Dr. Jim Selegean is a registered engineer and registered hydrologist with over 25 years of experience with the Great Lakes Hydraulics and Hydrology Office of the U.S. Army Corps of Engineers in Detroit. Dr. Selegean received his Ph.D. from Wayne State in Civil/Environmental Engineering in addition to a degree in aquatic ecology and currently directs the Corps' stream assessment and restoration efforts in the upper Great Lakes. Additionally, Dr. Selegean has extensive field experience in the study of rivers throughout the country and the world.



When: 8-week spring semester class at Wayne State University.
First lecture: 9 May 2018
Lectures on Wednesdays (5:30 pm to 8:50 pm) – Old Main
Field Work on Saturdays (8:00 am to 2:00 pm) – North Branch Clinton River

Pre-requisite: None. Waders will be required for field work.

For questions regarding course material, contact Dr. Jim Selegean at 313.226.6791 or james.p.selegean@usace.army.mil.