

**Laboratory 1
Level I Geomorphic Characterization**

Objective

- To perform a Level I Geomorphic Characterization of a fluvial system using GIS tools and/ products with appropriate techniques

Background Preparation

Review lecture 1 notes (ending on valley types) and assigned readings

This lab could utilize GIS, so if you do not have background in this area, you should see the professor, or find a well versed GIS helper for this exercise. GIS is not a prerequisite for this class, but it will be a powerful tool for future work.

Tools Required

- Graphic viewer (possibly ArcGIS) and calculating tool (personal calculator, spreadsheet or mathematical software such as MathCAD).
- Data layers linked to lab page, and possibly notes from field tour or soils maps, or GIS coverages from CUGIR or NYSGIS.

Deliverables

You will create an electronic report in memo format that will present a Level I Geomorphic Characterization for a fluvial system. Your report should be well written and be able to serve as a stand-alone explanation of your study to someone who is not in the course. Please format each of the following sections below with headings. Your report will contain the following elements, each formatted with a section heading. All tables and figures must be properly referenced in the text and labeled with headers. All references used must be cited in the text when used, and categorized in a end of report bibliography.

- An explanation of the objectives and purpose of Level I Geomorphic Characterization
- A list and affiliation (university, and town) of team members, location of study site, and tools used
- A brief explanation of the methods and data used
- A results section including an explanation of the Level I characterization for
 - climate type
 - underlying geology
 - valley type and noted landforms
 - soil types
 - watershed outlet location (lat / long)
 - watershed size (sq km)
 - land cover category (name) area (sq m) and percent

- basin elevation relief (m)
- valley slope and other notable slopes
- channel sinuosity
- channel pattern (single- or multi-threaded)
- channel shape estimate (narrow – wide, deep– shallow)
- Rosgen classification
- Montgomery and Buffington classification
- Leopold, Wolman, and Miller classification
- Davis classification
- A site sketch, with possible photos, showing the outlet, location of benchmark, your assigned cross-section
- A brief conclusion section summarizing your findings,
- An appendix with at least 1 sentence per assigned reading describing how it relates and informed this classification exercise.