Geovis Project Topic Discussion Worksheet (Short)

Page 1: write 3 candidate topics. Check ONE for deep-dive. Page 2: scientific review + peer feedback.

Student: Pegah Madadi **Date:** 1/21/2026 **Pod:**

Protocol reminder (Nested Model + Hanlon)

Hanlon: assume defaults/constraints first. Nested Model: L1 Domain (goal/audience/task) → L2 Data/Task (provenance/units/transforms) → L3 Encoding/Interaction (visual variables, color, legend, interaction) → L4 Implementation (correctness, performance, reproducibility).

Topic Shortlist (3 candidates) — Pick ONE to Deep-Dive on Page 2

Topic 1

☐ Deep-dive

Title:	Urban heat islands in three different cities in the US (Seatle, Charlotte, NYC)
Claim:	Grasp the importance of the impact of urbanisation on urban areas with three different charactors
Audience + task:	Find spatial pattern of hotspots in different cities based on factors like wind & temperate
Data + license:	US Environmental Protection Agency, USGS (LST, landcover vegetation, etc.)
Static idea:	Side by side layout maps for three cities with the same colormap
Interactive:	Dynamic maps showing the hotspots

Topic 2

☐ Deep-dive

Title:	Urban heat islands increase durinhg the last 20 years in Charlotte (2010,2015,2020,2025)
Claim:	The focus in more on the urbanisation by choosing one specific city, instead of compare temp & wind
Audience + task:	They will be find how and to what extend the impervious surfaces affect on UHI
Data + license:	North Carolina Data Portal, City of Charlotte Open Data Portal (LST, landcover vegetation, etc.)
Static idea:	Side by side layout maps for three cities with the same colormap
Interactive:	Dynamic maps showing the hotspots and urbanisation

Topic 3

☐ Deep-dive

Title:	Flood map in three different cities in the US (Phoenix, Miami, NYC)
Claim:	Find the relation between vegetation cover and flood risk
Audience + task:	Analyze the differences in flood maps among cities with varying climate characteristics
Data + license:	FEMA Flood Maps / National Flood Hazard Layer (NFHL), National Land Cover Database (NLCD) – USG
Static idea:	Side by side 4 layout maps for three cities with the same colormap
Interactive:	Dynamic maps showing the flood prone areas and vegetation covers fo each cities

Deep-Dive Topic Review (use for the selected topic)

Fill top-down: Level 1 → 2 → 3 → 4. Use peer feedback at the end.

Topic #: 1 **Title:** Cooling Impacts of Blue – Green Infrastructure on Urban Thermal Environment Using Geospatial and M

Step 0 (Hanlon): Defaults vs Malice

Most likely cause of misleading elements (defaults/constraints/intent):

Defaults and constraints (data availability, spatial resolution, model assumptions), not malice.

Level 1 — Domain (Purpose)

Claim:

Blue – green infrastructure (BGI) contributes to cooling the urbar

Audience + task:

Urban planners, environmental scientists, GIS/remote sensing r

Level 2 — Data/Task (Integrity + Transformations)

Data source(s), time range, units:

LST will be derived from Landsat 8/9 data with LULC, NDVI, NDWI, and ancillary variables

Transformations (check):

☑ Filter ☑ Aggregate ☑ Normalize ☑ Classify/bin ☐ Smooth ☑ Missing

Spatial inference risks (check):

☑ MAUP ☑ Ecological fallacy ☑ Small-number instability

Level 3 — Encoding/Interaction (Perception + Geoviz Rules)

Static map design (map type + variable + visual variable):

Choropleth & raster maps/ Variables: LST, NDVI, BGI density/ Visual variables: color hue & intensity

Color scheme:

☑ Sequential ☑ Diverging ☑ Qualitative

Geoviz checks (projection/scale/boundaries):

Consistent projected CRS, Neighborhood or census-tract boundaries, Scale matched to Landsat

Interactive plan (if any):

Maybe web map!

Level 4 — Implementation (Correctness + Reproducibility)

Tool stack + expected risks (performance, data size):

Google Earth Engine, ArcGIS, Python, Risks: large raster processing load

Reproducibility plan (repo + README + citations):

GitHub, README with workflow, parameters, and data links, Full citation of datasets

Peer Feedback (Ladder of Feedback)

Clarify:

Value:

Concerns:

Suggestions:

Decision

☑ Advance ☐ Hold/revise scope ☐ Drop/replace **Next actio** Finalize data sources