



A Program of The Actuarial Foundation

Modeling the Future Challenge

Optional Esri/ArcGIS use in the MTFC

- [Slideshow](#) & Recording from the Wed, Jan 11, 2023 MTFC Esri/ArcGIS Workshop: <https://vimeo.com/788481911>
- A good place to start? <https://livingatlas.arcgis.com/en/home/>
- See how Walter Payton Team 2 (the 1st place Team in the 2020-21 MTFC) used ArcGIS in their math modeling: check out their paper on the website: <https://www.mtfchallenge.org/awards/>
- Process to request FREE ArcGIS licenses from the MTFC: <https://www.mtfchallenge.org/esri/>
- BONUS! There are a limited number of first-come, first-serve office hours opportunities with Charlie Fitzpatrick and Kylie Donia available to sign up for on TimeTap - these are a bonus in addition to the 2 meetings with actuarial mentors.

Tips for Using Esri/ArcGIS

1. Have a good question and specific focus area, but seek data across wider content & geography; tweak as needed
2. Look critically at your data search results; first isn't always best; see the metadata before adding
3. Use basemaps that add clarity and power; swap anytime
4. Use good data layers, and the legend, know what you see
5. Turn layers on/off or adjust transparency to see patterns
6. Keep your layer list and map "tidy"
7. Filter data to your study area if possible
8. See/Use/Understand symbols, tables, popups
9. Record your data layer names and sources (screenshots help)
10. Generic internet search: "GIS DATA <your topic or your region or both>"



Proposal Topics Key Words (use these when searching in ArcGIS online for data)

- **Agriculture** - land ownership, farms, soil, pollution, rivers, drought, aquifer, climate, weather, population density, urban centers, transportation systems (think Ukraine, Suez Canal & Evergreen), strikes, economy, international markets (e.g. "futures"), imports & exports
- **Climate Change & Environment** - global politics, global business, global economics, social unrest, drought, climate, weather, fire, population density, hunger, starvation, vulnerability, biodiversity
- **Flooding / drought / natural disaster** - life insurance, homeowner insurance, flood insurance, population density, income, vulnerability, flood zones, landforms, watersheds, land use, insurance rates, transportation, health systems, energy systems, communication systems
- **Wildfires** - climate, weather, drought, pest infestation, politics and policy, population density, landforms, energy systems, communication systems, transportation systems
- **Property Damage** - disaster, weather, tornado, hurricane, wildfire, earthquake, volcano, tsunamis, social unrest, vulnerability,
- **Finance & business** - transportation & logistics, employment, income, inflation, vulnerability, social satisfaction, political patterns
- **Crime** - personal crime, property crime, income, employment, vulnerability,
- **Drugs / addiction / mental health** ==> health care access, social services, vulnerability, income, homelessness, public safety
- **Healthcare, injury** - health care access, personal savings, age profile
- **Pandemics and Diseases** - access to health care, income,
- **Social & community needs** - homelessness, home ownership, population density, income, medical centers, nonprofit groups, churches, employment, public safety, local/state politics