RESOURCES AND HELP FOR GIS

GENERAL

- ArcGIS Desktop Help:
  - 10.0: http://help.arcgis.com/en/arcgisdesktop/10.0/help/
  - 10.1: http://resources.arcgis.com/en/help/main/10.1/
  - 10.2: http://resources.arcgis.com/en/help/main/10.2
  - 10.3: http://resources.arcgis.com/en/help/
  - Pro: http://pro.arcgis.com/en/pro-app/help/main/welcome-to-the-arcgis-pro-app-help.htm
- ESRI Support (not particularly useful for many institutional users): http://support.esri.com/en/
- GIS StackExchange – a GIS Q&A community: http://gis.stackexchange.com
- GeoNet – Esri's GIS Q&A community: https://geonet.esri.com/welcome
- Spatial References: http://spatialreference.org/
- Joe Wheaton's website - http://gis.joewheaton.org (UC Davis alum, GIS expert, with tons of course material online)
- ESRI Hydro Blog – good for keeping current with GIS and data: http://blogs.esri.com/esri/arcgis/category/subject-hydro/
- GIS Bibliography – GIS research: http://training.esri.com/bibliography/index.cfm
- ESRI Tutorials (Help->Essentials Library->ArcGIS Tutorials): http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//00v20000000t000000.htm
- ETGeowizards – ArcGIS Software for water-oriented field work: http://www.ian-ko.com/ET_GeoWizards/gw_main.htm
- Geospatial Modelling Environment http://www.spatialecology.com/gme/
- R (can also do GIS, spatial stats, and much more). Make sure to also install RStudio along with it. http://cran.r-project.org/

BOOKS

- Francis Harvey: *A Primer of GIS: Fundamental Geographic and Cartographic Concepts.* Beginning to Intermediate
- Tim Ormsby, Eileen Napoleon, Robert Burke, Carolyn Groessl, Laura Feaster: *Getting to Know ArcGIS Desktop.* Beginning to Intermediate. Well known and widely used.
- *Making Spatial Decisions Using GIS and Remote Sensing: A Workbook* (I haven't used this one, but it looks promising – sample chapter at http://bit.ly/msd-remote). Beginning to Intermediate
- John R. Jensen: *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition.* Intermediate to Advanced.
- C.P. Lo, Albert K.W. Yeung: *Concepts and Techniques of Geographic Information Systems*. Beginning to Advanced

CARTOGRAPHY

- Colorzilla (firefox/chrome browser addon): http://www.colorzilla.com/
  See a color you like? Colorzilla helps you find out what it is, then morph it.
- Harvard Elements of Cartographic Style: http://www.gsd.harvard.edu/gis/manual/style/

- ColorBrewer: http://colorbrewer2.org/
- Color Scheme Designer: http://colorschemedesigner.com/
  Helps you use colors that work well together
- ESRI Mapping Center: http://mappingcentre.esri.com/
  - Resources Page: http://mappingcentre.esri.com/index.cfm?fa=resources.cartoFavorites
  - Cartography Brief: http://www.esri.com/Industries/k-12/education/~/media/Files/Pdfs/industries/k-12/pdfs/intrcart.pdf

DESIGN

- Cartastrophe: http://cartastrophe.wordpress.com/
  Examples of mapping done poorly – or mostly correctly – with explanations
- StackExchange questions:
  - What makes a map beautiful? http://gis.stackexchange.com/questions/3083/what-makes-a-map-beautiful
  - What classifies a map as badly designed? http://gis.stackexchange.com/questions/3087/what-makes-a-map-be-classed-as-badly-designed
- GreenInfo Network: http://greeninfo.org/
  A mapping firm with some excellent examples
- Shaded Relief (hillshades are hard): http://www.shadedrelief.com/
- GeoVista: http://www.geovista.psu.edu/

COMMUNITIES AND GIS NEWS

- GIS StackExchange – a GIS Q&A community: http://gis.stackexchange.com
- GeoNet – Esri's GIS Q&A community: https://geonet.esri.com/welcome
- Reddit GIS – A community for GIS enthusiasts of all types: http://reddit.com/r/gis
- My own newsletter on GIS: http://spatialreader.nicksantos.com
- A list of GIS blogs I collected: http://feedly.com/nickrsan
- Public Lab – a community of open source hardware and data projects and people, often with spatial components: https://publiclab.org/
- GIS Lounge – a GIS news site: https://www.gislounge.com/
- Digital Geography – a GIS news and blogging site: http://www.digital-geography.com/

DATA

- **Data Finders**
  - List of High Quality Datasets: https://github.com/nickrsan/awesome-public-datasets/
  - NRCS Geospatial Data Gateway: http://datagateway.nrcs.usda.gov/GDGOrder.aspx
  - List of worldwide GIS data sources from the US Geological Survey: http://education.usgs.gov/lessons/geospatialwebsites.html
  - An incredible list of data links from Humboldt State University: http://library.humboldt.edu/infoservices/staff/rls/geospatial/intgis.htm
  - National Map: http://viewer.nationalmap.gov/viewer/
  - American Factfinder (US Census data): http://factfinder2.census.gov
  - Book: The GIS Guide to Public Domain Data: https://spatialreserves.wordpress.com/about-the-book/

- **Datasets**
  - Enhanced National Hydrography Dataset (NHDPlus): http://www.horizon-systems.com/nhdplus/
  - GeoNames (GNIS): http://geonames.usgs.gov/domestic/download_data.htm
  - National Land Cover Dataset (NLCD): http://www.mrlc.gov/
  - TIGER (National lines and boundaries – Census): http://www.census.gov/geo/maps-data/data/tiger.html
  - USGS Water Data for the Nation: http://waterdata.usgs.gov/nwis
  - Listing of Global Terrain Data: http://vterrain.org/Elevation/global.html
  - World Terrain Data: http://www.naturalearthdata.com/
  - World Borders: http://thematicmapping.org/downloads/world_borders.php

WEB GIS, ONLINE SERVICES, AND MAP PUBLISHING

- MapBox: https://www.mapbox.com/
  Primarily for software developers
- CartoDB: https://cartodb.com/
  Make your own online maps
- ArcGIS Online: https://www.arcgis.com
  Web mapping platform tied in to ArcGIS Desktop
- AppSheet: https://www.appsheet.com/
  A free tool to create simple data collection apps

OTHER TRAININGS

UCD Extension Classes: http://bit.ly/extensiongis

ESRI Trainings: http://training.esri.com/gateway/index.cfm

FREE AND OPEN SOURCE GIS

TERMINOLOGY:

Free – NOT free-of-cost, but in terms of granting freedoms of use and modification:

1. The freedom to run the program, for any purpose
2. The freedom to study and adapt the program for ones own needs
3. The freedom to redistribute the program
4. The freedom to improve the program and to release these improvements to the public

Open Source – source code is easily accessible and can be modified, extended and/or distributed for non-commercial purposes benefitting the researchers, academics, and other end users. The word “open” never refers to freedom. http://www.opensource.org/docs/osd

PROGRAMS:

RECOMMENDED

***Quantum GIS* (QGIS)**– http://qgis.org/ - **Recommended**

- Becoming very advanced and usable!
- Provides integration with OSGIS packages to extend functionality
- Extended capabilities via Python plug-ins
- One of the largest FOS GIS user communities

Map Window – http://www.mapwindow.org/

- Developed to address the need for a GIS programming tool
- Extensible plug-in architecture
- Functions for hydrologic analysis

gvSIG - http://www.gvsig.org/web/

- Developed by the regional government of Valencia (Spain) to replace proprietary software
- Easily extendible allowing continuous application enhancement
- Available in many languages

OTHER NOTABLE GIS

GRASS – http://grass.osgeo.org/

- Well known, mature, long existence
- Developed by a branch of the USACE for land management and environmental planning
- Over 350 programs and tools, ability to couple with statistic software R
- Underlies many other advanced GISs.

uDig – http://udig.refractions.net/

- GIS functionality more focused towards data viewing and editing from databases and Internet sources

OpenJUMP – http://www.openjump.org/

- Developed particularly for vector data editing and conflation
- Ability to work with GIS data in GML format

RESOURCES:

PAPERS:

Chen 2010, *Assessment of open source GIS software for water resources management in developing countries*
http://www.sciencedirect.com/science/article/pii/S1570644310000511

Steiniger 2009, Free *and open source geographic information tools for landscape ecology*
http://www.sciencedirect.com/science/article/pii/S1574954109000363

Donnelly 2010, *Evaluating open source GIS for libraries*
https://sites.google.com/site/gisintheacademiclibrary/full-article-texts

OPEN SOURCE COMPARISON;

Wikipedia: http://en.wikipedia.org/wiki/Comparison_of_GIS_software

WEBSITES:

Cascadoss: http://www.cascadoss.eu/en/index.php

Open GIS Consortium http://www.opengeospatial.org/

Open Source GIS http://opensourcegis.org/

FreeGIS http://freegis.org/

OSGeo http://www.osgeo.org/

GISwiki http://en.giswiki.net/wiki/Category%3ASoftware

Open Source Systems for Library Services www.oss4lib.org

Wikipedia http://en.wikipedia.org/wiki/List_of_GIS_software

OTHER RESOURCES:

Free Software Foundation http://www.fsf.org/

Open Source Initiative http://www.opensource.org/

Color Laboratory http://colorlab.wickline.org/colorblind/colorlab/

Github: http://github.com

Bitbucket: http://bitbucket.com