**REFERENCES**

**Lab 1**

Grinham, Joshua. *How to Set out a Field Notebook*. GeoBus St Andrews, 2016a. https://[www.youtube.com/watch?v=8bktaGkagnI.](http://www.youtube.com/watch?v=8bktaGkagnI)

Grinham, Joshua. *How to Draw a Field Sketch*. GeoBus St Andrews, 2016b. https://[www.youtube.com/watch?v=3pkNsDcC61Y.](http://www.youtube.com/watch?v=3pkNsDcC61Y)

Markwick, Paul, 2020, “Field sketching in geology: time to think,” <http://www.palaeogeography.net/blog/field-sketching-in-geology-time-to-think>; last access: 2022-06-23.

Noad, Jon, 2016, “The (Forgotten?) Art of Geological Field Sketches,” <https://www.searchanddiscovery.com/documents/2016/41853noad/ndx_noad.pdf>; last access: 2022-06-23.

Oxford Cambridge and RSA, 2018, “Geological drawing,” <https://www.ocr.org.uk/Images/500028-geology-drawing-skills-handbook.pdf>; last access: 2022-06-23.

Williams, Maggie, “Field sketches & how to draw them,” <http://pcwww.liv.ac.uk/geo-oer/index_htm_files/Field%20sketches%20&%20how%20to%20draw%20them.pdf>; last access: 2022-06-23.

**Lab 2**

Chinellato, Matteo, “Sphalerite, Lengenbach Quarry, Fäld, Binn, Goms, Valais, Switzerland,” <https://www.mindat.org/photo-312483.html>; last access: 2022-06-29.

Cristofono, Peter, 2006, “Muscovite, Palermo No. 1 Mine, Groton, Grafton County New Hampshire, USA,” <https://www.mindat.org/photo-73662.html>; last access: 2022-06-29.

Cronin, Vince, 2002, “Amphibole Data: Specimen 2,” <https://croninprojects.org/Vince/PhysGeoLab/amphibole2.jpg>; last access: 2022-06-29.

Earle, Steven, 2019, “Figure 2.6.5 Cleavage and fracture in potassium feldspar,” *Physical Geology – 2nd Edition*. Victoria, B.C.: BCcampus, <https://opentextbc.ca/physicalgeology2ed/chapter/2-6-mineral-properties/>; last access: 2022-06-29.

Earle, Steven. (2019), “Figure 2.6.6 . . . cleavage planes in the mineral fluorite. . .,” *Physical Geology – 2nd Edition*. Victoria, B.C.: BCcampus, <https://opentextbc.ca/physicalgeology2ed/chapter/2-6-mineral-properties/>; last access: 2022-06-29.

Gillman, Joe, 2016, “Galena: Missouri's Official State Mineral,” <https://dnr.mo.gov/document-search/galena-missouris-official-state-mineral-pub0658/pub0658>; last access: 2022-06-29.

Minot, Henry, “Calcite (Var: Iceland Spar), Rockland, Knox County, Maine, USA,” <https://www.mindat.org/photo-533325.html>; last access: 2022-06-29.

NPS, (National Park Service). “Mohs Harness Scale.” Accessed July 18, 2019. https://[www.nps.gov/articles/mohs-hardness-scale.htm.](http://www.nps.gov/articles/mohs-hardness-scale.htm)

Press, Frank, Raymond Siever, John Grotzinger, and Thomas H Jordan. *Understanding Earth*. Macmillan, 2004.

Rizzo, Russel G. and Cal Neva Mineral Company, “Quartz (Var: Amethyst), Nangarhar, Afghanistan,” <https://www.mindat.org/photo-112839.html>; last access: 2022-06-29.

Rygel, M.C., CC BY-SA 3.0, “6 directions of cleavage,” <https://commons.wikimedia.org/w/index.php?curid=10127224>; last access: 2022-06-29.

**Lab 3**

Byrd Polar Research Center, Ohio State University, “Mantle Convection Cell,” <http://research.bpcrc.osu.edu/education/rr/plate_tectonics/mantle_convection_cell.gif>; last access: 2022-07-01.

Lowman, Paul and Jacob Yates, 2002, “Digital Tectonic Activity Map,” <https://visibleearth.nasa.gov/images/88415/digital-tectonic-activity-map>; last access: 2022-07-05.

McPhee, John. Annals of the Former World. Farrar, Straus and Giroux, 2000.

Meghani, Nooreen. “Earth Layers Schematic.” 2016. <https://www.e-education.psu.edu/marcellus/node/870>.

NOAA, “Image of the three main types of plate tectonic boundaries,” <https://oceanexplorer.noaa.gov/facts/media/plate-boundaries-800.jpg>; last access: 2022-07-01.

Panchuk, Karla, 2019, “6.2 The Rock Cycle,” in *Physical Geology, First University of Saskatchewan Edition*, <https://openpress.usask.ca/physicalgeology/chapter/6-2-the-rock-cycle/>; last access: 2022-07-01.

Seton, Maria, R. Dietmar Müller, Sabin Zahirovic, Simon Williams, Nicky M. Wright, John Cannon, Joanne M. Whittaker, Kara J. Matthews, and Rebecca McGirr, 2020, "A global data set of present‐day oceanic crustal age and seafloor spreading parameters," *Geochemistry, Geophysics, Geosystems* 21, no. 10, <https://doi.org/10.1029/2020GC009214>; last access: 2022-07-05.

United States Geological Survey (USGS), 2019, “Global Earthquakes, 1900–2013,” <https://commons.wikimedia.org/wiki/File:EQs_1900-2013_worldseis.png>; last access: 2022-07-05.

United States Geological Survey (USGS), n.d., “Track of the Yellowstone hotspot,” <https://www.usgs.gov/media/images/track-yellowstone-hotspot>; last access: 2022-07-06.

Wegener, Alfred. *The Origin of Continents and Oceans*. Courier Corporation, 1966.

**Lab 4**

Bosch, Rachel F. *Zabriskie Point, Death Valley National Park, Sunrise*. May 1, 2017. Digital photography.

Johnson, Sarah, 2018, Radiometric Dating, <https://nku.instructure.com/courses/15045/pages/geologic-time-and-dating/revisions>; last access: 2021-11-27.

Link, Paul, John Welhan, Jim McNamara, Charles Peterson, Stefan Sommer, and Tamra Shiappa. “What Are Stratigraphic Columns?” *Digital Atlas of Idaho*. Accessed July 19, 2019. <https://digitalatlas.cose.isu.edu/geo/basics/sedstrat.htm>.

Palmer, Arthur N. “Stratigraphic Column, Mammoth Cave National Park, Kentucky.” 1998.

Steno, Nicolaus. 1669, “The Prodromus of Nicolaus Steno’s Dissertation Concerning a Solid Body Enclosed By a Process of Nature Within a Solid; English Translation with Notes and Introduction” by John Garrett Winter, 1916, University of Michigan Humanistic Studies, Vol. *XI, Pt* 2.

United States Geologic Survey, 2007, “Age of the Earth,” <https://pubs.usgs.gov/gip/geotime/age.html>; last access: 2022-07-06.

United States Geologic Survey, 2008, “Spiral Age of the Earth Diagram.” March 25, 2008. <https://pubs.usgs.gov/gip/geotime/time.html>; last access: 2022-07-06.

**Lab 5**

Earle, Stephen, 2014, “Bowen's Reaction Series,” <https://opentextbc.ca/physicalgeologyearle/wp-content/uploads/sites/145/2016/06/Bowen-reaction2.png>; last access: 2022-07-06.

USGS, 2019a, “What Are Igneous Rocks?” United States Geological Survey. Accessed September 3, 2019. https://[www.usgs.gov/faqs/what-are-igneous-rocks?qt-news\_science\_products=0#qt-](http://www.usgs.gov/faqs/what-are-igneous-rocks?qt-news_science_products=0&qt-)news\_science\_products.

Wikipedia, “Bowen’s Reaction Series,” <https://en.wikipedia.org/wiki/Bowen%27s_reaction_series>; last access: 2019-09-30.

**Lab 6**

Mikenorton, 2018, “SedimentaryEnvironment.jpg,” derived from: “Principales medios sedimentarios.svg”, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=68836539>; last access: 2022-07-06.

**Lab 7**

USGS. 2019c. “What Are Metamorphic Rocks?” United States Geological Survey. Accessed September 3, 2019. https://[www.usgs.gov/faqs/what-are-metamorphic-rocks-0?qt-news\_science\_products=0#qt-](http://www.usgs.gov/faqs/what-are-metamorphic-rocks-0?qt-news_science_products=0&qt-)news\_science\_products.

Lab 8

Kenrick, David. 2005. “An Introduction to Topographic Maps.” Geneva, NY: Hobart and William Smith Colleges.

**Lab 9**

Dawes, Ralph L., and Cheryl D. Dawes. “Tables of Geologic Map Symbols.” Washington State Colleges, July 10, 2011. https://commons.wvc.edu/rdawes/G101OCL/Basics/BscsTables/geomapsymb.html#sdtable.

“Geology in Crossection.” Earth Science Australia. Accessed November 2, 2019. [http://earthsci.org/processes/struct/section/section.html.](http://earthsci.org/processes/struct/section/section.html)

Ohare, Brews, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=9386423. Accessed October 9, 2019.

**Lab 10**

Cressman, Earle R. and Warren L. Peterson, 2001, “Contributions to the Geology of Kentucky: Ordovician System,” <https://pubs.usgs.gov/prof/p1151h/ordo.html>; last access 1 July 2021.

Eastern Publications Group Web Team, 2001, “Contributions to the Geology of Kentucky: Stratigraphy,” <https://pubs.usgs.gov/prof/p1151h/stratigraphy.html>; last access 1 July 2021.

Grabowski, George J., Jr., 2001, “Contributions to the Geology of Kentucky: Mississippian System,” <https://pubs.usgs.gov/prof/p1151h/miss.html>; last access 1 July 2021.

Kepferle, Roy C., 2001, “Contributions to the Geology of Kentucky: Devonian System,” <https://pubs.usgs.gov/prof/p1151h/devonian.html>; last access 1 July 2021.

McDowell, Robert C., 2001, “Contributions to the Geology of Kentucky: Permian System,” <https://pubs.usgs.gov/prof/p1151h/permian.html>; last access 1 July 2021.

McDowell, Robert C. and Wayne L. Newell, 2001, “Contributions to the Geology of Kentucky: Quaternary System,” <https://pubs.usgs.gov/prof/p1151h/quat.html>; last access 1 July 2021.

Olive, Wilds W. and Robert C. McDowell, 2001, “Contributions to the Geology of Kentucky: Cretaceous and Tertiary System,” <https://pubs.usgs.gov/prof/p1151h/cret.html>; last access 1 July 2021.

Peterson, Warren L., 2001, “Contributions to the Geology of Kentucky: Silurian System,” <https://pubs.usgs.gov/prof/p1151h/silurian.html>; last access 1 July 2021.

“Regional Tectonic Map of the Midwestern Unites States.” Accessed October 26, 2019. https://igws.indiana.edu/AllenCounty/bedrockGeology.

Rice, Charles L., 2001, “Contributions to the Geology of Kentucky: Pennsylvanian System,” <https://pubs.usgs.gov/prof/p1151h/penn.html>; last access 1 July 2021.

Stoffer, Phil. “Dome Structure of the Cincinnati Arch Region.” January 19, 2015. [http://gotbooks.miracosta.edu/geology/regions/interior\_low\_plateaus.html.](http://gotbooks.miracosta.edu/geology/regions/interior_low_plateaus.html)

“Topographic Map of Kentucky.” <https://en-us.topographic-map.com/maps/ag/Kentucky/>; last access 1 July 2021.

USGS. “Geologic map of the state of Kentucky.” <https://mrdata.usgs.gov/geology/state/>; last access 1 July 2021.

**Lab 11**

Bank, Carl-Georg, 2021, Magnetometry at home: a hands-on survey with your smartphone, <https://serc.carleton.edu/NAGTWorkshops/online_field/activities/237373.html>; last access: 2021-11-24.

Environmental and Engineering Geophysical Society, n.d., “What is Geophysics?” <https://www.eegs.org/what-is-geophysics->; last access: 2021-11-24.

Nave, R., n.d., “Inverse Square Law, General,” <http://hyperphysics.phy-astr.gsu.edu/hbase/Forces/isq.html>; last access: 2021-11-24.

**Lab 12**

Carey, Dan. *Physiographic Regions of Kentucky*. Kentucky Geological Survey, 2002. <http://www.uky.edu/KGS/gis/regions.htm>.

Evans, John, and Howard Perlman, 2014, “The Water Cycle.” *United States Geological Survey,* [*Http://Ga.Water.Usgs.Gov/Edu/Watercycle.Html*](Http://Ga.Water.Usgs.Gov/Edu/Watercycle.Html).

Goldscheider, N., World Karst Aquifer Map, <https://www.whymap.org/whymap/EN/Maps_Data/Wokam/wokam_node_en.html>, last access: 16 July 2021.

Johnson, Donald R, Martin Ruzek, and Mike Kalb. “Earth System Science and the Internet.” *Computers & Geosciences* 26, no. 6 (2000): 669–676.

Paylor, Randall L., and James C Currens. *Karst Occurence in Kentucky*. Accessed October 17, 2020. <http://www.uky.edu/KGS/karst/karst_resources.php>.

**Lab 13**

Bosch, R., 2021, **“**Development and implementation of virtual field teaching resources: two karst geomorphology modules and three virtual capstone pathways,” *Geoscience Communication*, 4, 329–349, <https://doi.org/10.5194/gc-4-329-2021>.

**Lab 14**

Cesta, Jason and Elizabeth Orr (2018) “Laboratory 1: An introduction to glacial dynamics.”

“Glacial Map of Ohio.” 1:2000000. Ohio Department of Natural Resources, Division of Geological Survey, 2005.

Ormand, Carol, 2010, “Investigation: When will there no longer be glaciers in Glacier National Park?” <https://serc.carleton.edu/quantskills/activities/glacial_retreat.html>; last access: 2021-11-23.

“The Life of a Glacier.” National Snow & Ice Data Center. Accessed November 2, 2019. https://nsidc.org/cryosphere/glaciers/life-glacier.html.

Ward, Dylan (2017) “In class exercise: Glacial geology of Ohio.”

“What are the components of a glacier?” National Snow & Ice Data Center, 2020, <https://nsidc.org/cryosphere/glaciers/questions/components.html>; last access: 2021-11-26.

**Lab 15**

Anderson, J.L.B., 2020, Lab 7 for GEOS 105 at Winona State University: Intro to the Solar System, personal communication 2021-09-16.

NASA, 2021, Our Solar System, <https://solarsystem.nasa.gov/solar-system/our-solar-system/overview/>; last access: 2021-11-26.

**Lab 16**

Vecteezy, https://[www.vecteezy.com/; last a](http://www.vecteezy.com/)ccess: 2019-11-02.

Foreman, Paul, n.d., “100 Uses for Mind Maps,” <http://www.mindmapinspiration.com/100-uses-for-mind-maps-mind-map-paul-foreman/>; last access: 2021-11-23.

**Extra Credit 1**

Jefferson, 2008, “Take a Hike.” Accessed August 12, 2019. <https://d32ogoqmya1dw8.cloudfront.net/files/NAGTWorkshops/intro/activities/Take_A_Hike.pdf>.

**Extra Credit 2**

Cochiara, Stacey, 2008, Modified by Andrea Deanne Rodgers (SUNY Stony Brook) from original documents by Steve Reynolds (ASU), Stony Brook University. Accessed August 12, 2019. <https://serc.carleton.edu/NAGTWorkshops/intro/activities/23581.html>.