

## **Data Exploration and Synthesis for Environmental Policy**

SMEA 550B (3 credits)

Winter Quarter 2022

### **Course Information**

Schedule: Tuesdays & Thursdays, 9:30-10:50 AM

Location: [Fishery Sciences Building](#) (FSH) 107

Dr. Anne Beaudreau (she/her)

Email: [annebeau@uw.edu](mailto:annebeau@uw.edu)

Phone (office): 206-543-0113

### **Office hours**

In person (MAR 129)\*: Tuesdays, 2-3 PM \*Via Zoom (link below) through the end of January

Zoom: Fridays, 2-3 PM

Video link: <https://washington.zoom.us/j/99094093221>

Meeting ID: 990 9409 3221

Audio-only option:

+1 206 337 9723 US (Seattle)

Meeting ID: 990 9409 3221

Find your local number: <https://washington.zoom.us/j/abaMMeaoyz>

### **COVID-19 Safety**

The health and safety of students, faculty, postdocs, and staff are the University of Washington's priority. Due to the ongoing COVID-19 pandemic and until otherwise stated, face coverings are required as outlined in the [UW COVID-19 Face Covering Policy](#). Please monitor yourself for COVID-19 symptoms, stay home if you are sick, and follow the agreements outlined in the [Husky Pledge](#).

As an added measure of safety, and in keeping with the [CDC's ventilation guidance for workplaces](#), I will prop open the classroom's external doors to increase airflow. Please bring layers to stay warm on cooler days. I will also ask students to sit in the same seats for the entire quarter (this is helpful in the event that contact tracing becomes necessary). To the extent possible, I will maintain a physical distance of 6 feet from other individuals.

For more information, please visit [SMEA COVID-19 Updates and Resources](#) with links to UW sites containing COVID-19 updates, resources and information.

### **Course Description**

Accessing and synthesizing publicly available data to inform decision-making is a key skill in environmental science and policy careers. In this course, students will build practical skills in data acquisition, preparation, visualization, and interpretation using publicly available datasets, such as U.S. Census data, fisheries harvest data, and environmental monitoring data. The

course will be taught through a combination of hands-on exercises to gain experience working with diverse types and forms of data and interactive lecture and discussion to examine topics ranging from quality assurance to data equity. Students will apply their learning to address a policy-relevant question through exploration of a selected dataset using the platform of their choice (Excel or R).

### **Student Learning Outcomes**

In this course students will:

- Learn how to access and become familiar with various types of open (public) data that are used in environmental decision-making.
- Critically examine datasets and metadata records to understand how and why data were collected and what types of decisions they can inform.
- Increase awareness of open data principles, data equity, accessibility, ownership, and privacy considerations.
- Gain practice in creating quantitative, graphical, and textual summaries of data to address specific questions.
- Increase skill in communicating environmental science to decision-makers and the public.

### **Instructional Methods and Course Materials**

The course will be taught using a combination of interactive lectures, discussion, and class activities. Students will need to provide their own computers; please bring your laptop to class so that you can complete the class activities. A typical week will be structured as follows (with some exceptions):

- Tuesday—interactive lectures to present foundational concepts and examples
- Wednesday—short weekly assignment due in preparation for Thursday class; please complete reading before Thursday
- Thursday—discussion and class activities designed to apply concepts and practice working with diverse types and forms of data

There is no textbook for this course. Lecture slides, assignments, and readings will be made available on Canvas. In general, the assigned readings provide background, case studies, and a foundation for class discussion. You may wish to explore certain topics more deeply outside of class and for most weeks I provide additional supplementary resources, which are optional. Please view the reading list as a work in progress and I welcome any recommendations or requests you might have.

### **Learning Environment**

My approach to teaching is to promote active learning in the classroom. My role in this course is to largely serve as a facilitator in your exploration of public data and its application. This includes providing the necessary background on each week's topics and moderating classroom discussions. Your role is to be an active, contributing member of the class. I welcome and look forward to your ideas and questions. I encourage you to take advantage of my scheduled office hours or make an appointment to meet with me. If you are struggling with any aspects of the

course material or learning environment, please talk with me—I am happy to provide the support you need to be successful.

During the first week of class, we will collaboratively develop a set of community agreements. These agreements will serve as a foundation for building community in our classroom and fostering an inclusive and positive learning environment.

### **Assignments and Grading**

Students will be evaluated on their participation, short weekly assignments, and a project, each comprising the following percentage of the final grade—

| <b>Assignment (N/quarter)</b>         | <b>Total points possible</b> | <b>Percent of grade</b> |
|---------------------------------------|------------------------------|-------------------------|
| Project (1)                           | 100                          | 50                      |
| Weekly assignments (7)                | 70                           | 25                      |
| Participation (10 + pre-class survey) | 102                          | 25                      |
| <b>TOTAL</b>                          |                              | <b>100</b>              |

To calculate your final grade, use the following formula:

$$\text{Final grade} = (50 * \text{project points} / 100) + (25 * \text{weekly assignment points} / 70) + (25 * \text{participation points} / 102)$$

Conversion of final grades to the 4.0 scale required by UW is determined as follows:

| <b>Final grade</b> | <b>Grade point</b>                                                             |
|--------------------|--------------------------------------------------------------------------------|
| ≥ 95               | 4.0                                                                            |
| > 61 to < 94       | 0.7-3.9, based on formula: <i>grade point</i> = 0.1 * <i>final grade</i> - 5.5 |
| ≤ 61               | 0.6                                                                            |

This scheme is based on the [grading rubric developed by the UW Program on the Environment](#) and follows [UW Graduate School grading guidelines](#).

**Participation (25% of overall grade):** Participation is important in learning the course material. If you cannot attend class, please contact me as soon as you can (in advance when possible) to ensure that you meet learning objectives.

To earn full credit for participation (10 points/week): contribute questions or comments during class (written or verbal) or via the Canvas discussion board in the event that you miss a class. You will earn 2 points for completing the pre-class survey.

**Short weekly assignments (25% of overall grade):** **Due by midnight on Wednesdays via Canvas; assignments will be posted ~1 week before they are due.** Weekly assignments are designed to support student learning through deeper exploration of readings and concepts presented in

Tuesday lectures and to prepare students for discussion and group work on Thursdays. The weekly assignments will take a variety of forms depending on the topic, including but not limited to: 1-paragraph reflective responses to assigned readings; exploration of a dataset or resource online and responses to specific prompts or questions; or creating a graphic or figure from a specific dataset.

Weekly assignments are graded out of 10 points each. To earn full credit:

1. Address all required components of the assignment, as detailed in specific guidance given for each posted assignment.
2. Complete a total of 7 out of 8 assignments during the quarter.

**Project (50% of overall grade):** Over the course of the quarter, students will apply their learning to address a policy-relevant question through exploration of a selected dataset. Each student will join a team of several students (group size depends on enrollment) to identify a focal topic, relevant dataset, and motivating questions. While most of the project components are to be completed individually, class time will be used to bring your ideas together as a team to deepen your understanding of the dataset through discussion, sharing data visualization tools, and reviewing each other's work.

The project is comprised of five components that are due at different points throughout the quarter. Some of these components are intended to be building blocks or draft versions of later project stages. The benefits of this structure are that: a) it allows for work to be spread out across the quarter rather than concentrated at the end, and b) it provides regular opportunities for instructor and peer feedback.

**Summary of project components.** More detailed guidelines regarding the content and structure of each component will be provided during the quarter. The project as a whole is graded out of 100 points. Together, these components make up 50% of the final course grade.

| Component and brief description                                                                                                                                                                                                                                                                                                                                                                                                        | Team or Individual product? | Week due | % of final grade |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------|------------------|
| <b>(1) Proposed topic, dataset, &amp; motivating questions</b><br>Each group will select a topic (focal issue) and generate a set of broad, motivating questions to address through analysis of a publicly available dataset. This will form the basis of an issue brief (see below).                                                                                                                                                  | Team                        | Week 3   | 5%               |
| <b>(2) Draft data biography &amp; research questions</b><br>A data biography is a detailed summary of a dataset's origin and purpose. It includes a metadata record ("data about data") as well as a more descriptive background about who collected the data, what data are included, when and where it was collected, and why it was collected. Draft data biographies due in Wk 5 will be produced individually. As a team, you may | Individual                  | Week 5   | 10%              |

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| collaborate to create a final data biography based on your drafts, if you have used the same dataset.<br><br>Research questions are more specific questions to guide analysis of the selected dataset. Each team member will develop their own question(s) to explore.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |             |     |
| <b>(3) Draft methods &amp; exploratory analysis</b><br>Draft methods for summarizing and analyzing the selected dataset in bullet point form, including any relevant information about database queries, quality assurance, data preparation, calculations, statistics, and data visualization techniques. Include preliminary results, such as tables, figures, or summary statistics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Individual | Week 7      | 10% |
| <b>(4) Presentations</b><br>An oral presentation (~15 min) will be given by each group to the class during the last week of the quarter. Presentations should include an overview of the focal issue and dataset used, highlights from individual team member's analyses, and interpretation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Team       | Week 10     | 5%  |
| <b>(5) Issue brief</b><br>An issue brief is a concise synthesis of information about a particular issue with policy implications, geared towards a particular audience. Issue briefs are regularly prepared by agency staff to inform decision-makers (e.g., legislators, resource managers). These "knowledgeable generalists" are often briefed on many topics quickly, so the information needs to be prioritized and presented in a way that is easily comprehended. The issue brief will provide an overview of the focal issue and its policy-relevance, perspectives from agencies and the public, your analysis and key findings, and conclusions (including recommendations). Issue briefs should be 4 pages, including visual and/or tabular summaries of the focal dataset. References, the final data biography, and data analysis methods are to be included as appendices. | Individual | Finals Week | 20% |

### **Course Policies**

**Late Assignment Policy:** If you cannot complete an assignment on time, please contact me as far in advance as possible to request an extension. Because they are due during finals week, issue briefs will not be accepted past the due date (except in the case of emergency).

**Academic Integrity:** The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you're uncertain

about if something is academic misconduct, please ask. I am happy to discuss questions you might have.

Acts of academic misconduct may include, but are not limited to, cheating and plagiarism. Cheating is when a student gives or receives any form of assistance during an examination or quiz; duplicated or paraphrased answers on assignments are also considered cheating. Plagiarism is defined as the submission or presentation of work that is not a student's own without acknowledgment of the source. Submission of the same work in more than one course without prior approval of all professors responsible for the courses is also considered academic dishonesty.

You are responsible for understanding and following [The University of Washington Student Conduct Code \(WAC 478-121\)](#). Concerns about behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication. Students found to have engaged in academic misconduct may receive a zero on the assignment (or other possible outcome).

**Student Access and Disability Resources:** Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with [Disability Resources for Students \(DRS\)](#), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at [www.disability.uw.edu](http://www.disability.uw.edu).

**Safety and Protections from Discrimination:** Title IX, Title VII, the Violence Against Women Act (VAWA), Washington State law, and University of Washington policy collectively prohibit discrimination based on sex, sexual orientation, gender, gender expression, pregnant or parenting status, and LGBTQ+ (lesbian, gay, bisexual, transgender, queer) identity. For more information on your rights and the resources available to you, please visit the [Title IX site](#).

**Religious Accommodation:** Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy](#). Accommodations must be requested within the first two weeks of this course using the [Religious Accommodations Request form](#).

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*The University of Washington stands on the territories of Coast Salish peoples; the Duwamish, Muckleshoot, Suquamish, Tulalip, and Puyallup.*

## Data Exploration and Synthesis for Environmental Policy

SMEA 550B (3 credits) – Winter Quarter 2022

Specific topics subject to revision.

| Week | Dates              | Topic                                                                                                                                                                                | Assignment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Tu 1/4<br>Th 1/6   | <b>Introduction and course overview</b><br><i>Goals, objectives, and classroom community; Overview of data in decision-making; Open data principles and laws</i>                     | <p>Assigned reading (see Canvas). Read the syllabus and review the Canvas site. Complete the pre-class survey due <b>F 1/7</b>.</p> <p>(1) Willoughby S (2019) Open data and the environment. In Davies T, Walker S, Rubinstein M, &amp; Perini F (Eds.), The state of open data: Histories and horizons (pp. 103–118). Cape Town and Ottawa: African Minds and International Development Research Centre.</p> <p>(2) Elliot KC, Resnick DB (2015) Scientific reproducibility, human error, and public policy. Bioscience 65(1): 5-6.</p>                                                                                                                                                                                                                                            |
| 2    | Tu 1/11<br>Th 1/13 | <b>Designing research with public data</b><br><i>Data types and acquisition; Framing research questions; Perspectives and motivation in a data project; Overview of issue briefs</i> | <p>Assigned reading (see Canvas). Short assignment due <b>W 1/12</b> at 11:59 pm.</p> <p>(1) Hampton SE, et al. (2017) Skills and knowledge for data-intensive environmental research. Bioscience 67(6): 546–557.</p> <p><i>This was written by a team at the National Center for Ecological Analysis and Synthesis (NCEAS), an organization that hosts data synthesis working groups, trains graduate students in data science, and is a leader in reproducible research with “big data” in ecology. The paper provides a window into the emerging field of data science and the types of skillsets that are viewed as important for data-intensive environmental research. From a practical standpoint, one of the most useful parts of this paper is Table 1, which lists</i></p> |

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|          |                          |                                                                                                                                       | <p><i>trainings and resources, many of which are freely available online.</i></p> <p>(2) Pennock A (2018) Ch. 8: The Issue Brief. In: <u>The CQ Press Writing Guide for Public Policy</u>. CQ Press.</p> <p><i>This chapter offers a useful, big picture overview of issue briefs. Note that not all of the specific guidance is entirely relevant to the issue brief format we will be using. For instance, the author contends that issue briefs should be 1-2 pages, but we will use a longer form structure of 4-5 pp for the class project.</i></p>                                                                                                                                                                                                                                                                                                                                                                       |
| <b>3</b> | Tu<br>1/18<br>Tu<br>1/20 | <p><b>Data documentation</b></p> <p><i>Data documentation (metadata, data biographies); Data quality; Archiving your own data</i></p> | <p>Assigned reading (see Canvas). Short assignment due <b>W 1/19</b> at 11:59 pm.</p> <p><u>Project Part 1, due F 1/21 at 11:59 pm: Proposed topic, dataset, &amp; motivating questions</u></p> <p>(1) Wiggins A, et al. (2013). Data management guide for public participation in scientific research. DataONE: Albuquerque, NM. 15 pp. <a href="#">[Link]</a></p> <p><i>Read this one first. It's a nice refresher on the data life cycle and introduction to data management from the perspective of community science projects.</i></p> <p>(2) Michener WK (2018) Chapter 2: Project Data Management Planning. pp. 13-26. In: Recknagel F, Michener WK (Eds.) <u>Ecological Informatics</u>. 3<sup>rd</sup> Ed. Springer. <a href="#">[Link - This links to a whole book; you only need to read the assigned pages!]</a></p> <p><i>This dives a little deeper into the process of creating a data management plan.</i></p> |

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| 4 | Tu<br>1/25<br>Th<br>1/27 | <p><b>Long-term monitoring data</b><br/> <i>Monitoring program design and trade-offs; Types of monitoring; Applications to decision-making</i></p> <p>Guest speaker (Th 1/27): Chris Sergeant, University of Montana, Flathead Lake Biological Station</p> | <p>Assigned reading (see Canvas). Short assignment due <b>W 1/26</b> at 11:59 pm.</p> <p>(1) Lindenmayer DB, Likens GE (2010) The science and application of ecological monitoring. <i>Biol. Conserv.</i>, doi:10.1016/j.biocon.2010.02.013 <a href="#">[Link]</a></p> <p><i>Read this paper first. This provides a broad overview of long-term ecological monitoring, including types of monitoring, monitoring pitfalls, and characteristics of effective monitoring programs.</i></p> <p>(2) Sergeant CJ, Moynahan BJ, Johnson WF (2012) Practical advice for implementing long-term ecosystem monitoring. <i>Journal of Applied Ecology</i>, doi: 10.1111/j.1365-2664.2012.02149.x <a href="#">[Link]</a></p> <p><i>This paper was led by our guest speaker Chris Sergeant and provides context for his presentation.</i></p> <p>(3) Read Chris Sergeant's bio <a href="#">here</a></p> |
| 5 | Tu 2/1<br>Th 2/3         | <p><b>Data equity and social data</b><br/> <i>Foundations of data equity; Collecting and using demographic data; U.S. Census data</i></p>                                                                                                                  | <p>Assigned reading (see Canvas). Short assignment due <b>W 2/2</b> at 11:59 pm.</p> <p>(1) D'Ignazio C (2017) Creative data literacy: Bridging the gap between the data-haves and data-have nots. <i>Information Design Journal</i> 23(1): 6-18 <a href="#">[Link]</a></p> <p><i>This paper discusses ways to cultivate data literacy, so that open data are more accessible to the public. Are there any tactics for creative data literacy that you have applied in your own work (past or current)?</i></p>                                                                                                                                                                                                                                                                                                                                                                             |

|          |                    |                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                    |                                                                                                                                                                     | <p>(2) Take about 10-15 minutes to explore one of the <a href="#">Data Equity Tools</a> on the U.S. Census Bureau's website. According to the <a href="#">website</a>, these tools are designed to "help the public and policy makers understand the issues surrounding inequities and enable them to propose effective, data-based solutions."</p> <p><i>As you explore the tool, think about the ways in which it center the user's experience and how it can be improved. Consider who might use the tool and for what purpose.</i></p> <p><a href="#">Project Part 2, due F 2/4 at 11:59 pm:</a><br/> <a href="#">Draft data biography &amp; research questions</a></p> |
| <b>6</b> | Tu 2/8<br>Th 2/10  | <b>Analysis, visualization, and interpretation</b><br><i>Data preparation; Quality control; Raw data vs. derived values; Detecting trends in environmental data</i> | <p>Assigned reading (see Canvas). Short assignment due <b>W 2/9</b> at 11:59 pm.</p> <p>(1) Michener WK (2018) Chapter 4: Quality Assurance and Quality Control (QA/QC). pp. 55-70. In: Recknagel F, Michener WK (Eds.) <i>Ecological Informatics</i>. 3<sup>rd</sup> Ed. Springer. <a href="#">[Link - This links to a whole book; you only need to read the assigned pages!]</a></p>                                                                                                                                                                                                                                                                                      |
| <b>7</b> | Tu 2/15<br>Th 2/17 | <b>Analysis, visualization, and interpretation (cont'd)</b><br><i>Data visualization and graphics; Creating data summaries; Interpretation of results</i>           | <p>Assigned reading (see Canvas). Short assignment due <b>W 2/16</b> at 11:59 pm.</p> <p>(1) Yau N. How to Spot Visualization Lies. Flowing Data. Available: <a href="https://flowingdata.com/2017/02/09/how-to-spot-visualization-lies/">https://flowingdata.com/2017/02/09/how-to-spot-visualization-lies/</a></p> <p>(2) Midway SR (2020) Principles of Effective Data Visualization. Patterns, <a href="https://doi.org/10.1016/j.patter.2020.100141">https://doi.org/10.1016/j.patter.2020.100141</a> <a href="#">[Link]</a></p> <p>(3) I provided a lot of additional resources this week (below); choose one or two to explore.</p>                                  |

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|  |  |  | <p><b>Project Part 3, due F 2/18 at 11:59 pm:</b><br/> <b>Draft methods &amp; exploratory analysis</b></p> <p><b><u>Optional</u></b></p> <ul style="list-style-type: none"> <li>• Aghassibake, Negeen (2021) <a href="#">Data Visualization self-guided course</a> created by UW Data Visualization Librarian.</li> <li>• Cool Infographics. Available: <a href="https://coolinfographics.com/dataviz-guides">https://coolinfographics.com/dataviz-guides</a></li> <li>• Data Visualization Library Guide. University of Washington Libraries. Available: <a href="https://guides.lib.uw.edu/datavisualization/home">https://guides.lib.uw.edu/datavisualization/home</a></li> <li>• Dougherty J, Ilyankou I (2022) Hands-On Data Visualization: Interactive Storytelling from Spreadsheets to Code. Available: <a href="https://handsondataviz.org/">https://handsondataviz.org/</a></li> <li>• Flowing Data: Guides. Available: <a href="https://flowingdata.com/category/guides/">https://flowingdata.com/category/guides/</a></li> <li>• Flowing Data: Learning. Available: <a href="https://flowingdata.com/learning/">https://flowingdata.com/learning/</a></li> <li>• IAN Symbol Library (custom made vector symbols; lots of environmental themes). Available: <a href="https://ian.umces.edu/media-library/symbols/">https://ian.umces.edu/media-library/symbols/</a></li> <li>• IBM Design Language. Color. Available: <a href="https://www.ibm.com/design/language/color">https://www.ibm.com/design/language/color</a></li> <li>• Our World in Data (lots of cool data viz) Available: <a href="https://ourworldindata.org/">https://ourworldindata.org/</a></li> <li>• Schwabish, J. A Step-by-Step Guide to Advanced Data Visualization in Excel. Policy Viz. Available: <a href="https://policyviz.com/wp-content/uploads/woocommerce_uploads/2017/07/A-Guide-to-Advanced-Data-Visualization-in-Excel-2016-Final.pdf">https://policyviz.com/wp-content/uploads/woocommerce_uploads/2017/07/A-Guide-to-Advanced-Data-Visualization-in-Excel-2016-Final.pdf</a></li> </ul> |
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|   |                          |                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>• The Data Visualization Catalogue. Available: <a href="https://datavizcatalogue.com/">https://datavizcatalogue.com/</a></li> <li>• ggplot2 (graphing in R). Available: <a href="https://ggplot2.tidyverse.org/">https://ggplot2.tidyverse.org/</a></li> <li>• RStudio Cheat Sheets. Available: <a href="https://www.rstudio.com/resources/cheatsheets/">https://www.rstudio.com/resources/cheatsheets/</a></li> <li>• R Color Cheat Sheet. Available: <a href="https://www.nceas.ucsb.edu/sites/default/files/2020-04/colorPaletteCheatSheet.pdf">https://www.nceas.ucsb.edu/sites/default/files/2020-04/colorPaletteCheatSheet.pdf</a></li> <li>• R Dates and Times Cheat Sheet. Available: <a href="https://evoldyn.gitlab.io/evomics-2018/ref-sheets/R_lubridate.pdf">https://evoldyn.gitlab.io/evomics-2018/ref-sheets/R_lubridate.pdf</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8 | Tu<br>2/22<br>Th<br>2/24 | <b>Communication and application</b><br><i>Communicating results in text and images; Format and distribution; Data availability vs. accessibility</i><br><br><u>Th 2/24: NOAA West Coast Region staff presentations &amp; discussion</u> | <p>Assigned reading (see Canvas). Short assignment due <b>W 2/23</b> at 11:59 pm.</p> <p>Please read these websites to give you some background / context for the talks from NOAA staff on Thursday:</p> <ul style="list-style-type: none"> <li>– Recovery of Endangered and Threatened Species. <a href="https://www.fisheries.noaa.gov/insight/recovery-endangered-and-threatened-species">https://www.fisheries.noaa.gov/insight/recovery-endangered-and-threatened-species</a></li> <li>– ESA Section 7 Consultations on the West Coast. <a href="https://www.fisheries.noaa.gov/west-coast/consultations/esa-section-7-consultations-west-coast">https://www.fisheries.noaa.gov/west-coast/consultations/esa-section-7-consultations-west-coast</a></li> </ul> <p><b>Optional</b><br/> Accessibility articles and resources:</p> <ul style="list-style-type: none"> <li>– Section 508: Create accessible digital products <a href="#">[Link]</a></li> <li>– How to meet Web Content Accessibility Guidelines (WCAG) <a href="#">[Link]</a></li> <li>– Principles of Universal Design <a href="#">[Link]</a></li> <li>– <a href="#">Practical Skills for Creating Accessible Content.docx</a></li> <li>– Color contrast checking tools <a href="#">[Link]</a></li> <li>– Guide to Accessible Data Visualization <a href="#">[Link]</a></li> </ul> |

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|   |                  |                                                                                                                                     | <ul style="list-style-type: none"> <li>– Inclusive Data Visualization for People with Disabilities <a href="#">[Link]</a></li> <li>– Why Accessibility is at the Heart of Data Visualization <a href="#">[Link]</a></li> <li>– SAS enables visually impaired to 'visualize' data <a href="#">[Link]</a></li> <li>– Screen reader technology improvements; article contains links to other resources <a href="#">[Link]</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 9 | Tu 3/1<br>Th 3/3 | <b>Data sovereignty and ownership</b><br><i>Ownership and intellectual property; Confidential data; Indigenous data sovereignty</i> | <p>Assigned reading (see Canvas). Short assignment due <b>W 3/2</b> at 11:59 pm.</p> <p><i>The material for this week presents some of the issues with open data, from two perspectives. The podcast focuses on confidential fishing data and the Walter et al. (2020) paper discusses Indigenous data sovereignty.</i></p> <ol style="list-style-type: none"> <li>1. Listen to Parts 1 and 2 of the <i>Fishing for Data</i>, Episode 1 podcast (~45 min) <a href="#">here</a>. Alternatively, you may read the transcript for Parts 1 and 2 <a href="#">here</a>.</li> <li>2. Walter M et al. (2020) Indigenous Data Sovereignty in the Era of Big Data and Open Data. <i>Aust J Soc Issues</i> 56:143–156. <a href="#">[Link]</a></li> </ol> <p><b>Optional:</b></p> <ul style="list-style-type: none"> <li>– Hummel et al. (2021) Data sovereignty: a review. <i>Big Data &amp; Society</i>, doi: 10.1177/2053951720982012 <a href="#">[Link]</a></li> <li>– Walter M, Suina M (2019) Indigenous data, indigenous methodologies and indigenous data sovereignty. <i>International Journal of Social Research Methodology</i> 22(3): 233-243 <a href="#">[Link]</a></li> <li>– Belarde-Lewis, M. (2011). <i>Sharing the Private in Public: Indigenous Cultural Property and online</i></li> </ul> |

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|--------------------|----------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |                      |                                             | <p>media. iConference 2011, February 8-11, 2011, Seattle, WA, USA <a href="#">[Link]</a></p> <p>– World Intellectual Property Organization (WIPO). (2003). Minding Culture: Case Studies in Intellectual Property and Traditional Cultural Expressions. Geneva. <a href="#">[Link]</a></p> |
| <b>10</b>          | Tu 3/8<br>Th<br>3/10 | <b>Student presentations and discussion</b> | <p>Submit presentation materials by <b>Tu 3/8</b> at 9 am.</p> <p><a href="#">Project Part 4: Presentations in class</a></p>                                                                                                                                                               |
| <b>Finals Week</b> | Week of<br>3/13      | <i>No class</i>                             | <p><a href="#">Project Part 5, due W 3/16 at 11:59 pm: Issue brief</a></p>                                                                                                                                                                                                                 |