Quantified Self (SOC 325)

An introduction to the societal implications of self tracking

Fall Quarter, 2023

Class Schedule

Lecture:	Tuesday and Thursday 10:30 - 12:20
Lecture Location:	CDH 109
Quiz Section AA:	Wednesday 8:30-9:20 AM **Location AA:** THO 125
Quiz Section AB:	Wednesday 9:30-10:20 AM **Location AB:** EGL G01
URL:	https://canvas.uw.edu/courses/1662500

Professor

Name:	Zack W. Almquist
Office:	Savery 231
Office Hours:	Tuesday 12:30-1:30 PM
Email:	zalmquist@uw.edu

Teaching Assistants/Lab Instructors

Name:	Elizabeth Nova
Office:	Savery 250
Office Hours:	Friday 10:00-12:00 AM
Email:	emend026@uw.edu

Course Description

This course will focus on how apps and other online services are allowing individuals and organizations to track details of their own lives. We will cover the positive aspects of tracking, for example health and wellness tracking, as well as the negative aspects of allowing oneself to be tracked such as a lack of privacy. Real world examples include the large community of people who share results of their tracking on platforms such as reddit to help them accomplish financial (e.g. saving for a house), fitness (e.g. weight lifting), and health (e.g. weight loss) goals. Organizations and governments use this information for advertisements (e.g. real estate sales

or weight loss programs), equipment (e.g. fitness trackers or heart rate monitors), policy (e.g. areas where cars should not go), etc. The course will involve weekly readings, labs and final course projects centered around generating, manipulating, and analyzing data created by the student.

Course Objectives

- Apply data and data science methods to pose and address questions and problems that are relevant to the quantified self and large-scale voluntary tracking of the individual.
- Explain the ethical and social implications of self tracking data on society.
- Demonstrate the ability to execute the life-cycle of a project, including problem formulation, data collection or generation, data manipulation, analysis, and communication through creating through own data and synthesizing it for their final project.

Course Format

Lectures

Lectures will be approximately 110 minutes a week. This will cover basic background knowledge and theoretical material for the week.

Data Science Activities: R Labs

Labs will be approximately 110 minutes a week. This will cover basic knowledge of R, databases and how to work with tracking application programming interfaces (API).

Quiz Sections

Quiz sections will be approximately 50 minutes a week. No quiz section the first week. The quiz sections will provide hands-on help with R and feedback for projects or other assignments as needed.

Prerequisites

None officially required at this time. Recommended: a statistics course (e.g. SOC 221) and SOC 225.

Course Requirements

Google Documents

We will make extensive use of Google Drive and google documents. It will be very important to share your google document to me (zalmquis@uw.edu) to facilitate timely grading. All Google Document assignments will be submitted by generating a shared link and submitting to canvas.

To log into your UW gmail account to access it. If you have not set it up I recommend going here (Getting Started with UW G Suite | IT Connect). If you have it set up, you simply need to use the NETID SSO http://gmail.uw.edu.

R and RStudio

Labs will use R and RStudio for all computation, analysis and data management. We will provide access to RStudio JupyterHub which you can access from your own computer or University computer. You can also download R and RStudio to your home computer and access the labs at Github.

Participation [40%]

(1) [100 pts] Canvas Blog Post Response to Weekly Questions
- 8 Total Blog Posts [Over weeks 1-9]
- I will drop the two lowest scores.
- Due Tuesday at 5:00PM.

(2) [100 pts] Lecture activities (randomly dispersed through the quarter).
- I will drop your two lowest scores.

(3) [100 pts] Participate in Sleep Study Questionnaires
  (a) [20 pts] Demographic Survey (1 time)
    (i) https://forms.gle/UVStQAVMTGmzTBz97
    (ii) Complete in the first two weeks.
  (b) [20 pts] Chronotype Questionnaire (1 time)
    (i) https://forms.gle/PafHy9yLV1Kg566w9
    (ii) Complete in the first two weeks.
  (c) [60 pts] Sleep and daily habits log (Daily for entire quarter)
    (i) https://forms.gle/rj5aj9nLokLPC9CY7
    (ii) Complete at least 60 days over the 69 days of the quarter.

Project [30%]

[100 pts] Everyone will complete a 3-5 minute presentation (including questions) at the end of quarter (weeks 9 and 10).

Project Options

1. Research a topic in the area of “Quantified Self” - produce a slide deck and create a youtube video of you presenting it.
2. Show and Tell. Similar to labs, analyze your own data - produce a slide deck and create a youtube video of you presenting it.
3. Similar to labs, analyze data (not your own) - produce a slide deck and create a youtube video of you presenting it.
    a. Quantified Self Data for Project Analyzing Someone Else's Data

Grade for the project will consist of:

1. ~~Select project type (week 2) [10 pts]~~
2. One paragraph description of your project (week 5) [~~10 pts~~ 20 pts]
3. Rough draft of slides (week 8) [10 pts]
4. Sign up to present project (week 9) [5 pts]
5. Submit final slides (weeks 10 or 11) [25 pts]
6. Final slides and Video recording of presentation (weeks 10 or 11; signup sheet) [40 pts]

The project’s final form will be a slide deck and Video recording 5-10 minutes of presenting your project as YOUTUBE video (submit link). We will show the projects at the time of sign up and you will have 2 minutes for questions (10 points out of 40).

R Labs [30%]

We will use R and Rstudio to gain experience with core data science tasks such as data management and analysis.

Weekly Lab Covers:

1. Basics of Data Science in R.
2. Data pulling from an API.
3. Data management, e.g., SQL.
4. Data management and manipulation in R.
5. Data analysis and visualization in R.

Labs will be done using RStudio server. Which you can access at Jupyter notebooks.

- Labs and instruction will be provided on Thursday Weeks 2-8.
- You will hand in a HTML lab file on the following Thursday Week 3-9.
- Your lowest lab will be dropped.

7 Labs

1. [100 pts] Review/Introduction to R and Data Structures
2. [100 pts] Basics of Statistics in R

3. [100 pts] Using R to accessing APIs for data from self tracking hardware/software
4. [100 pts] Analyzing sleep study data from questionnaires
5. [100 pts] Analyzing sleep data from watches
6. [100 pts] Review lab
7. [100 pts] Text analysis of quantified self data
8. Extra lab, replaces your second lowest score
    a. [100 pts] Introduction to US Census data in R through tidycensus

- Reminder, lowest lab is dropped.

Late Policy

SOC 325 - Late Policy

Grading

Participation:	50%
Project:	20%
R Lab:	30%

Note about grading

Lectures, readings, and labs are provided for each student's benefit. It is the responsibility of the student to take advantage of these opportunities to acquire and demonstrate mastery of course material, so as to achieve his or her desired grade.

Letter grade assignment

% Points Earned	Number grade	Letter Grade
100-97	4.0-3.9	A
96-90	3.8-3.5	A-
87-89	3.4-3.2	B+
86-84	3.1-2.9	B
83-80	2.8-2.5	B-
79-77	2.4-2.2	C+
76-74	2.1-1.9	C
73-70	1.8-1.5	C-
69-67	1.4-1.2	D+

66-64	1.1-0.9	D
63-60	0.8-0.7	D-
59-0	0	F

Reading

Text Books

- **[QS] -** Lupton, Deborah. The Quantified Self. PolityPress, 2016.
    - Deborah Lupton - The Quantified Self-Policy Press (2016).pdf
- **[ST] -** Neff, Gina, and Dawn Nafus. Self-tracking. MIT Press, 2016.
    - Available for free from MIT press - Self-Tracking | Books Gateway
    - Also available as pdf - GN - Self-Tracking
- **[IDT]** - Diez, Barr and Çetinkaya-Runde. “Chapter 1: Introduction to data” in Introductory Statistics with Randomization and Simulation, First edition, 2014. OpenIntro. LINK.
- **[GIW]** Gary Isaac Wolf. “ Personal Science”
    - https://helpthisbook.com/gary-isaac-wolf/personal-science-draft-feedback

Academic Articles

- Available - Articles
- **[ZA]** - Almquist, Zack W., and Carter T. Butts. "Predicting Regional Self-Identification from Spatial Network Models." *Geographical analysis* 47.1 (2015): 50-72.
- **[KC]** - Crawford, Kate, Jessa Lingel, and Tero Karppi. "Our metrics, ourselves: A hundred years of self-tracking from the weight scale to the wrist wearable device." *European Journal of Cultural Studies* 18.4-5 (2015): 479-496.
- **[KL] -** Kravitz, Richard L., et al. "Feasibility, Acceptability, and Influence of mHealth-Supported N-of-1 Trials for Enhanced Cognitive and Emotional Well-Being in US Volunteers." *Frontiers in public health* 8 (2020): 260.
- **[GW] -** Wolf, G. I., and M. De Groot. "A Conceptual Framework for Personal Science." *Front. Comput. Sci. 2: 21* (2020).
- **[MP] -** Pantzar, Mika, and Minna Ruckenstein. "Living the metrics: Self-tracking and situated objectivity." *Digital health* 3 (2017).
- **[KCBL]** - Kelley, Christina, Bongshin Lee, and Lauren Wilcox. "Self-tracking for mental wellness: understanding expert perspectives and student experiences." *Proceedings of the 2017 CHI conference on human factors in computing systems* (2017).
- **[KWJ]** - Wright Jr, Kenneth P., et al. "Sleep in university students prior to and during COVID-19 Stay-at-Home orders." Current biology 30.14 (2020): R797-R798.
- **[DGP]** - Dunster, Gideon P., Isabelle Hua, Alex Grahe, Jason G. Fleischer, Satchidananda Panda, Kenneth P. Wright Jr, Céline Vetter, Jennifer H. Doherty, and Horacio O. de la Iglesia. "Daytime light exposure is a strong predictor of seasonal variation in sleep and circadian timing of university students." Journal of Pineal Research (2022): e12843.

Popular Press

- **[NYT - DDL]** Gary Wolf. The Data Driven Life. New York Times. April 28, 2010.
- **[NYT - TPA]** Natasha Singer. Technology That Prods You to Take Action, Not Just Collect Data. New York Times. April 18, 2015.

PDFs of the articles and book chapters can be found

Course Calendar

Week	DOW	Date	Holidays	Lecture	Lab	Blog Post Question	Project	Readings
Week 1	**Introduction and Brief History of Self Tracking and the Quantified Self**							
	Thu	9/28/2023				1. What kind of data do you currently collect about yourself, if any? 2. What is this data currently good for, if anything? 3. What would you be interested in tracking about yourself that you don't currently track?		KC
Week 2	**Personal Science, Questioning and Observing**							
	Tue	10/3/2023		Guest Lecture: Gary Wolf				GIW Chapters: Personal Science, Questioning and Observing

	Wed	10/4/2023			Introduction to Elizabeth and working with Jupyter Notebooks and Google Sheets	Collect something about yourself using google sheets for one week. Attempt to graph it and discuss what you learned.		
	Thu	10/5/2023			Introduction to R and Data Science			NYT - DDL; NYT - TPA
Week 3	**Making Sense of Data**							
	Tue	10/10/2023						IDT
	Wed	10/11/2023			Importing Google sheets into R.	Using the data you collected in week 2. Compute the mean, median, mode and standard deviation. Report the table and provide an interpretation of these statistics.		
	Thu	10/12/2023			Basics of statistics in R			
Week 4	**Reasoning, Discovering and Resolution**							
	Tue	10/17/2023					Select Project Due.	GIW Chapters: Reasoning, Discovering, Resolution
	Wed	10/18/2023			Review basics of statistics in	Think back on the data you		

					R	collected in week 2. Follow the GIW algorithm for reasoning, discovering, and resolution. What can you reason from your data? What can you discover and what is your resolution.		
	Thu	10/19/2023			Using R to accessing APIs for data from self tracking hardware (e.g. fit bit or apple watch)			
Week 5	**N of 1 Studies versus Clinical Trials**							
	Tue	10/24/2023					One paragraph write of project proposal Due.	GW, KL, MP
	Wed	10/25/2023			Review API access in R	Consider each of the Sleep questions. Propose a hypothesis about your sleep pattern and reason through how you would check it given the available data.		
	Thu	10/26/2023			Analyzing sleep study data from questionnaires			

Week 6	**Physiological Measures, Surveys and Other Tools**							
	Tue	10/31/2023						DGP, KWJ
	Wed	11/1/2023			Review analyzing questionnaire data	If you could add a question to the sleep study what would it be and why?		
	Thu	11/2/2023		Guest Lecture: TBD	Analyzing sleep data from watches			QS 3; GW
Week 7	**Citizen Science and Online Communities**							
	Tue	11/7/2023						QS 4; MP, ST 5; ZA
	Wed	11/8/2023			Review analyzing sleep data	Think about your everyday life. What are some examples of Citizen Science that you use? For example think about google maps traffic data or user comments online.		
	Thu	11/9/2023			Text analysis of Reddit quantified self group			
Week 8	**Data Science of Self Tracking: Privacy, Government and Large Corporations**							
	Tue	11/14/2023		Guest Lecture: TBD				QS 5; ST 4 & 6
	Wed	11/15/2023			Review text analysis in R	Check on quantified self data. Is there anything in your life you now want to		

						track? Why? What your goal be if you tracked it?		
	Thu	11/16/2023			Introduction to US Census data in R through tidycensus		Rough draft slides Due.	
Week 9	**Thanksgiving - No Class (Finish Youtube video for Presentation)**							
	Tue	11/21/2023						
	Wed	11/22/2023			Lab Due (notice non-standard time)			
	Thu	11/23/2023	Thanks Giving				Sign up for Presentation date	
Week 10	**Student Presentations**							
	Tue	11/28/2023						
	Wed	11/29/2023	**No Quiz Section**					
	Thu	11/30/2023						
Week 11	**Student Presentations**							
	Tue	12/5/2023						
	Wed	12/6/2023	**No Quizz Section**					
	Thu	12/7/2023						
Final Week	**No Final**		**Final Slides and Video are Due the night before your presentation.**					

R Resources

Datacamp

This class is supported by DataCamp, the most intuitive learning platform for data science and analytics. Learn any time, anywhere and become an expert in R, Python, SQL, and more. DataCamp's learn-by-doing methodology combines short expert videos and hands-on-the-keyboard exercises to help learners retain knowledge. DataCamp offers 325+ courses by expert instructors on topics such as importing data, data

visualization, and machine learning. They're constantly expanding their curriculum to keep up with the latest technology trends and to provide the best learning experience for all skill levels. Join over 5 million learners around the world and close your skills gap.

Datacamp Recommendations

- Programming - Part 1 (Writing code in RStudio)
- Introduction to R
- Intermediate R
- Introduction to the Tidyverse
- Reporting with R Markdown
- Managing - Part 1 (Projects in RStudio)
- Introduction to Writing Functions in R
- Introduction to Statistics in R (Chapters 1-3)
- Foundations of Probability in R (Chapters 1-2)

UW Specific R Material (Written largely for graduate students)

Chuck's R Introduction to R for Social Scientists

- CSSS 508 | UW CSSS508

Chris Adolph's Visualization Course

- Chris Adolph :: Visual

University of Washington Policies

ACCOMMODATIONS FOR RELIGIOUS ACTIVITIES
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.

DISABILITY ACCESS & ACCO\MMODATIONS:
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

experience barriers based on disability, please seek a meeting with DRS to discuss and address them. If you have already established accommodations with DRS, please communicate your approved accommodations to
me at your earliest convenience so we can discuss your needs in this course. Disability Resources for Students (DRS) offers resources and coordinates reasonable accommodations for students with disabilities. Reasonable accommodations are established through an interactive process between you, your instructor (me) and DRS. DRS information can be found at: Disability Resources for Students.

SOCIOLOGY DIVERSITY STATEMENT:
The Department of Sociology at the University of Washington values diversity, equality, and inclusivity in our community. We realize these goals in our classrooms by questioning assumptions in our texts, discussions, and our own thinking, and by holding all members of our community to the highest standards of respectful and open communication, as laid out in the UW Student Conduct Code.

ACADEMIC INTEGRITY
See Student Conduct Code | Community Standards & Student Conduct for crucial information regarding academic integrity. The library also has an extremely useful website with resources at Library Guides: Academic Integrity and Plagiarism Prevention Resources: Academic Integrity & Plagiarism. You are responsible for knowing what constitutes a violation of the University of Washington Student Code, and you will be held responsible for any such violations whether they were intentional or not. A clear list of rules and examples of violations can be found here: Student Academic Responsibility

MANDATORY REPORTING STATEMENT
* CAUTION! Please note that we are mandatory reporters, which means that we may be required to report it to the University if you share with me experiences of past abuse or plans to harm yourself and others.

UW Student Resources

STUDENT RESEARCH RESOURCES:
- *Libraries*: University of Washington Libraries
- *Center for Statistics and the Social Sciences (CSSS):* Home | Center for Statistics and the Social Sciences
- *Center for Social Science Computation and Research (CSSCR):* The Center for Social Science Computation and Research
  Center for Studies in Demography and Ecology (CSDE): Computing

UW WRITING CENTERS

- *Sociology Writing Center* (open to all students enrolled in this course): SAV 203; Sociology Writing Center 206.221.0972
  Students who want to make an appointment should email writesoc@uw.edu.
  Students may also make appointments by calling or visiting the Advising Office.
- *Odegaard Writing and Research Center* (open to all students) : Odegaard Undergraduate Library — UW Libraries. Phone 206.221.0972 and 206.543.5396.
- Center for Undergraduate Learning and Education (CLUE): email clue@uw.edu
  This Week at CLUE: UW Academic Support Programs.

OTHER STUDENT SUPPORT SERVICES:

Dispute Resolution and Bias Reporting Supports
- *Office of the Ombud*: Office of the Ombud 206-543-6028
- *Bias Report* (for incidents of bias in any form): Report Bias
- *Community Standards & Student Conduct*: Making a report | Community Standards & Student Conduct
- *Title IX/ADA Coordinator* if complaint is related to disability accommodation, sex/gender discrimination, or sexual harassment (Title IX): (scroll down to bottom of page to "Grievance Procedures & Barrier Reporting") Policy, law and reporting | Compliance

Financial Assistance
- *Emergency Aid:* Seattle | Emergency Aid
- *Office of Student Financial Aid*: Contact us | Student Financial Aid
- *Short Term Emergency Loans:* Short-term loans | Student Financial Aid
- *Campus Food Pantry:* Get-Food
- *Housing Assistance*: Other assistance | Student Financial Aid

Mental Health Supports
- *Health and Wellness office:* LiveWell Center for Student Advocacy, Training, and Education 206.543.6085
- *Hall Health:* http://depts.washington.edu/hhpccweb/
- *Hall Health Mental Health:* Hall Health
- *Counseling Center:* About the Counseling Center | Counseling Center
- *Resources Re: Sexual / Relationship Trauma:** Sexual Assault Resources

Building Community
- *Office of Minority Affairs & Diversity:* Office of Minority Affairs & Diversity
- *Samuel E. Kelly Ethnic Cultural Center*: Samuel E. Kelly Ethnic Cultural
- *Q Center (for Queer community, including Questioning):*
  Q Center
- *Intellectual House (for Indigenous community):*
  wəɬəb?altxʷ – Intellectual House | Diversity at the UW
- *International Student Center:* International Student Services - International Student ServicesInternational Student Services

- *Deaf and Disability Cultural Center (D Center):* HUB 327 D Center at the University of Washington
- *Undocumented Student Resources:* Undocumented student resources | Admissions

Technology Supports (and remote learning related supports)

- *IT Connect* (tech support services for students): Teaching and Learning Tools
- *Internet connection and free wifi hotspots* (enabled during COVID-19 outbreak) Internet connectivity for learning, teaching and working remotely
- *Laptop Loans* Remember that through the technology fees that you pay you can reserve a laptop if you need to! Laptops for takeout or delivery: Student technology program readies for spring quarter
- *Online Academic Success Coaching*: Success Coaching: UW Academic Support Programs
- *Online Study Skills Resources*: (e.g. time management) Study Skills: UW Academic Support Programs
- Video on preparing for online learning: https://vimeo.com/4012001600