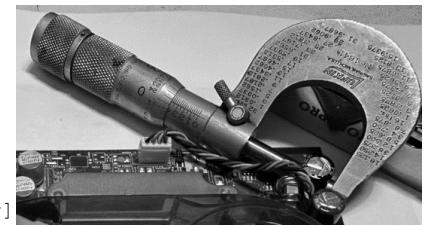


Teaching Statement

by: Brian Hogan, MS

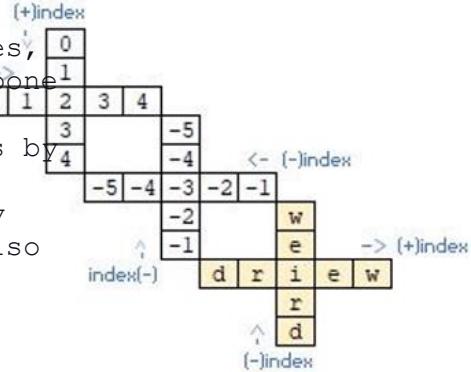
[grandfather's
micrometer]



Precision and rigor

This teaching philosophy channels the spirit of 1890s to 1920s American industrialism by emphasizing the importance of precision and rigor in computer science students. I achieve this through consistent written code feedback, active whiteboarding of complex data structures, and demystifying intricate Python Package Index libraries ([pypi](#)) by teaching students how to pack and unpack their data structures.

Further skilling in the core Python [built-in](#) data structures, i.e., lists, strings, tuples, and dictionary, forms a backbone in data exchange, transformation, and interoperability. Students become programmers when intuiting built-in objects by iterating or referencing data to suit a snapshot. Like mastering a set of wiggly data blocks, one's rigor grows by ensuring proper cases and no blank spaces. This approach also trains in tidy data[1] arrangements reflecting the grok required to index, sort, and transfer data to suit a statistical purpose or AI objective.



Interactive workspaces, such as Google Workspace, enable students to develop a corpus of activities, reflections, and code comments that are easily accessed and sorted for knowledge reinforcement. This corpus serves as a machine tooling standard for learning precision and quality, akin to the precision tools used in machining, such as a micrometer and parts gauge. Moreover, it underscores the significance of constructing a searchable information tree and building a pathway toward sustainable coding knowledge.

Demystifying the Python Package Index connects students to the 600,000+ coders who design and skill open-source amazingness, such as the NASA Mars Ingenuity [helicopter](#). Instead of re-inventing a transformation, I teach students to learn the right words to query [pypi](#) and discover suitable objects and methods. Why weed through poor search outcomes and fatten Google's pocket? Curiously, while working at Google, my manager tasked me to create effective search trees to provide career certificate learners with efficient parameters. Such explicit search language empowers student attention by restoring their focus to task completion. "Yes!" upfront attention to language detail is required, but providing quality language saves time with searches yielding quality information. Super coders embrace this approach upon learning that a series of quality searches may [open](#) Google's [foobar](#) challenge.

Festooning students



Festooning Bees [2]

Principles of information democracy and transparency strengthen precision and rigor in computer science education. Students post their assignments in an interactive learning [structure](#), building a corpus of problem-solving approaches and styles. This exchange of information enables students to seek help from peers directly in active learning collaboration JAMs and passively by sorting and learning from peer problem-solving techniques. Hive structures facilitate festooning, i.e., the organic scaffolding among

students to solve, repair, and collaborate. These activities build relationships and accountability regardless of intersectionality, personality, and prior experiences. The experience foreshadows online forums that facilitate quality information exchange.

From a technical perspective, the collective corpus is invaluable as it's transcribable into a data pipeline. It supports teaching moments by connecting students to the reality of firms harvesting their data for classification and profiling. ChatGPT has generated controversy but can effectively consolidate information and provide students with helpful takeaway knowledge bytes, such as a lecture summary from audio recording.

As an update, DeepLearning.AI now offers [training](#) on prompt engineering with ChatGPT. This technology is incredible, and I am currently [testing](#) the reliability of quality automated assignment scoring. Their technology now processes fact sheets, which are akin to assignment solutions. It is an opportunity to deepen the scaffolding amongst students and learning. It's also a pathway to university quality chatbot assistants enabling students to self-grade their assignments and learn more interactively based on their teacher's notes. I apologize for venturing a corny metaphor but it's like stirring a teacup of information honey.

Diversity, equity, and inclusion (DEI)

To create an inclusive learning environment, I prioritize interoperability using Google Workspace, GitHub, and Microsoft Teams to facilitate active and passive student engagement. I combat residual phone flipping damage by providing hyperlinks, data, and sources on the same 2D screen students face.

Workstation equity is crucial for situational learning, and I assess student equipment on day one to support effective learning. From my relationship with the local e-trash recycling center, students are provided with a second or third monitor, a mouse, and cables to ensure a programming equipment baseline. I look forward to technology monitor display paint enabling one to paint a surface across any interior house wall.

Collaborative JAMs provide a platform for reluctant students to engage. With more than five accessibility students, I prioritize their needs by monitoring their personality changes and offering support by connecting them to writing services and administrative support letters. Andrew, who successfully finished my class, felt isolated until I took the time to walk with him. I will continue using my honed empathic skills to ensure no student feels isolated.

To further my assessment of student performance, I'm completing DeepLearning.AI's new course on GPT 3.5-Turbo technology for prompt engineering. In brief, generative.AI technology accepts "fact sheets," which can build a new chatbot and automate initial assignment grading.

Assistance with grading supports both dynamic and random student assessment. I intend to continue assessing personally but also investigate new avenues of scoring and learning, such as providing students with their lexical and information density. Such direct measures would help them distinguish their quality versus claptrap. What endless possibility vectors.

Future plans

As we witness our progress in space exploration, precise computer science and AI will permeate deeper into our lives. Regardless of a student's background, having access to learning programming provides a means of critically assessing technology's impact on their lives. I aspire to participate meaningfully in its policy enactment.

In 2016, President Obama prioritized broadband access with his ConnectAll initiative, extending broadband to remote areas for equitable access to information[9], especially health information. Performing similarly by establishing programming as a national [K12](#) GED standard would extend and provide students with baseline computing knowledge [10]. Many researchers, such as Jong and Bass, are evaluating national policy for its adoption[11].

As we peer into the looking glass of generative AI's reflections, we risk falling into Lovecraftian unfathomable horrors unless we arm ourselves with the knowledge of the coded processes enveloping our senses, like when Alice armed herself with a [vorpal](#) sword to slay the Jabberwocky. AI can be dangerous, and skilling in its science may reduce its net harm to each individual. As thoughtfully outlined by Frank Schmedhchen in [The World we Want to Live in](#), "we need to understand profoundly where we stand and what the next steps will be of the digitalization, networks (or interconnectedness), and machine learning (artificial intelligence; AI) to make informed and wise decisions[11].

I'm resolute in my commitment to skilling students in computer science leading to fierce skills and a mindset of practicing coding on day one of class. All students can develop these critical skills, equipping them for the future job market and providing them with the tools to deconstruct and grok technologies they encounter."

Welcome to the classroom terminal! In the spirit of Monty Python, let's dive into the 7 pillars of skilling that contribute to student success and substance.

- | | |
|----------------------------------|---------------------|
| 1. hive mind | 5. journaling |
| 2. research | 6. ethical behavior |
| 3. adaptability and preparedness | 7. active listening |
| 4. polysyllabics | |

>_7.Pillars.of.Skills

1. Hive mind

The "hive mind" refers to the collective intelligence of a group of individuals. In a university setting, it emphasizes the importance of collaboration and community-building among students. Students build their people skills and develop the mutual respect critical for academic and professional success by working together and supporting one another.

Interactive learning structures, such as cloud workspaces, facilitate JAMs, i.e., swarming activities, to foster this sense of community. These resources provide systems and support for students who need additional assistance, encourage altruistic behavior, and reinforce learning.

By engaging in collaborative activities and peer help, students exercise and challenge their brain's neuroplasticity to adapt and achieve sustained learning and positive achievement. To promote this collaborative learning environment, I encourage students to seek peer help after 20 minutes so active learning moments don't turn reactive.

A hive mind provides collaboration and community-building skills by equipping them with supportive and inclusive structures leads to academic and professional success.

2. Research skills

Gathering and analyzing information effectively is critical for undergraduate and graduate students across disciplines. By promoting effective research techniques and critical thinking, students can evaluate sources and make informed decisions based on evidence.

Promoting research skills helps students appreciate scientific methods and enables them to design, conduct, and analyze research efforts. While extensive research methods training is essential, it's also crucial to provide students with baseline knowledge of the structure of scientific articles, including the abstract, introduction, methods, results, and discussion. This way, they learn to find knowledge kernels to support arguments and guide inquiry.

In today's data-driven world, gathering and analyzing information is highly valued. High-tech companies, such as DeepMind, issue in-depth white papers. Raising awareness of research skills helps foster a culture of intellectual curiosity and enables one to appreciate first principle thinking.

3. Adaptability and Preparedness

Adaptability and preparedness are essential for success in both academic and professional contexts. I focus on developing resilience, flexibility, adaptability, effective time management, and organizational skills to help students stay on track and meet their goals. I encourage creativity, critical thinking, and problem-solving and want my students to be comfortable taking risks, asking questions, and trying original approaches while preparing for the challenges they'll face.

A rapidly changing world is blasé. Ray Kurzweil's singularity[6] is near, and Google executives nixed his protege's chatbot after AI safety and fairness standards. Let's use specific and precise language; the alien chatbot used grotesque and threatening language. It's speculated that Ray's pupil Daniel De Freitas did it intentionally[7].

Preparedness is computer science literacy, learning to adapt, and looking ahead. I aim to prepare students with the tools, tricks, methods, and legerdemain to oversee any challenge confidently. I provide engaging lectures and facilitate round-table discussions to encourage open discussions, discerning realistic outcomes and practical applications of learned concepts.

Preparedness is crucial to succeeding in any field. Students should come to class ready to learn and participate, having completed any required readings or assignments. In return, I provide clear and concise explanations of complex concepts, offer opportunities for students to practice what they've learned, and receive feedback on their performance. This approach helps students develop the skills and mindset needed to navigate the ever-changing landscape of academia and work professions.

4. Polysyllabics

In my teaching, I balance using clear, concise language with introducing students to new, challenging polysyllabic words. Building a strong vocabulary is a lifelong process reinforced in the classroom. I encourage my students to engage with wordbook learning, build syllable word trees, and practice polysyllabics in their writing and speaking.

Using big words doesn't necessarily equate to effective communication. I emphasize the importance of clarity and precision in language and encourage students to use language appropriate to the context and audience—avoiding overly complex terminology when it is not necessary or proper and focusing on clear and effective communication.

Developing a diverse and nuanced vocabulary is essential for success in both academic and professional contexts. As a teacher, I strive for students to feel comfortable exploring novel words and concepts. Pleasant surprises and fun instructor poking are welcome, like when Pietro informed me of his metastasizing hippopotomonstrosesquipedaliophobia.

5. Active Listening

Active listening is a critical skill for effective communication and collaboration, and instilling and honing this skill helps prepares my students. As an undergraduate in psychology, I trained in Carl Rogers and Richard Farson's active listening technique[8] and journaling, and interestingly, both were also essential components of my process engineering training.

Active listening is necessary for understanding the ideas and perspectives of others, building rapport, and creating an atmosphere conducive to learning. As a teacher, I strive to create a safe and supportive environment where students feel comfortable sharing their ideas and perspectives. All voices are heard and valued, and I encourage students to ask questions, clarify information, and respond thoughtfully to others' views and ideas. Awareness of the power of listening improves persuasive communication and pointed feedback.

Skills require practice, and I repeatedly ask specific questions from prior classes to help with recall and reinforce learning. Building rapport is essential to understanding, and responding thoughtfully to another equips students to succeed in their careers and personal lives.

6. Journaling

Reflection through writing is fundamental for personal and intellectual growth, especially for university students. As educators, we must encourage students to develop regular writing practice through journaling, blogging, or other forms of written expression to cultivate critical thinking skills essential for success in academia and beyond.

Journaling, in particular, is a valuable practice for students to adopt, as it strengthens their recall ability and enhances their ability to analyze their experiences critically. As we strive to connect with our students and support their learning, it helps to acknowledge the evolving landscape of education and Gen-Z learners' unique preferences and habits. Incorporating digital technologies, like YouTube, facilitates engagement and new forms of expression.

Incorporating methods from experts such as Cal Newport and Scott Young's Life of Focus course reinforces the importance of the rigor of journaling. Augmenting these focus methods with active listening and journaling fosters a positive self-outlook rooted in critical thinking and self-reflection. As university professors, we must encourage students to embrace writing as a personal and intellectual growth tool.

7. Ethical behavior

Ethical behavior is essential in academic and social settings to establish trust, credibility, and integrity. However, developing a robust ethical framework can be a complex task. As an educator, it's important to emphasize the importance of honesty, fairness, and respect in all aspects of one's academic, professional, and personal life.

To reinforce, I provide reminders about profane language and encourage active consideration of how another perceives their action. I also share the recommendations of experts such as Dr. John M Curtis, who advocates for avoiding negativity and controversy while emphasizing the importance of fair-minded behavior[10].

In computer science, statistical fairness measures are crucial in measuring information exchange and access for all. AI technology advances, and it's important to emphasize the responsibility that comes with it. While features may seem cool or innovative, it's crucial to consider their impact and avoid misuse like image distortion or clouding one's judgment. A culture of respect and dignity in computer science will help students embrace an ethical framework deepening their substance.

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