

SIME 5960-6960 Special Topics: Cognitive Drivers of Engineering Leadership Spring 2026

Instructor: Prof. Cristian Clavijo
Office: MEK 2550
Email: c.clavijo@utah.edu
Class Time: TBD
Class Location: TBD
Office Hours: TBD

Required books:

- “Never Split the Difference: Negotiating as if your life depended on it” by Chris Voss
- “The Emotional Life of Your Brain: How its unique patterns affect the way you think, feel, and live—and how you can change them” by Richard Davidson
- “Your Brain at Work: Strategies for overcoming distraction, regaining focus, and working smarter all day long” by David Rock

Course Description: This course explores the neuroscience, psychology, and communication dynamics that shape how leaders think, decide, and influence others. Drawing from cutting-edge research and practical frameworks, students will examine how cognitive processes, emotional regulation, and conversational strategies impact leadership effectiveness and organizational outcomes in engineering enterprises. By integrating theory with real-world applications, students will develop insight into “mental drivers” behind their personal management style along with tools to recognize biases, manage emotions, improve decision quality, and foster constructive dialogue in STEM industries.

Student Learning Outcomes: By taking this course, the student will:

Identify the basic anatomical brain regions and neurotransmitters that have been correlated with intellectual and emotional pathways.

Explain key neuroscience concepts relevant to engineering leadership, including how the brain processes information, emotion, and social interaction.

Identify cognitive shortcuts and biases (such as heuristics, confirmation bias, and threat responses) that influence decision-making and behavior in technical and organizational contexts.

Assess their own emotional style using neuroscience-informed frameworks, recognizing both strengths and areas for improvement.

Apply neuroscience principles to enhance self-awareness, emotional regulation, and stress management as a leader.

Develop strategies to optimize brain performance of multidisciplinary teams, including methods for improving focus, memory, creativity, and motivation.

Design personal leadership development plans that incorporate neuroscientific insights to support long-term growth, career development, and skills to influence without authority.

Analyze the approaches and career decisions taken by current senior industry leaders in the realm of personal leadership and team development.

Grading Scheme

25%	Homework
15%	Quizzes
10%	Presentation #1
30%	Exams
20%	Final Presentation

Score	Grade	Score	Grade
94	A	74	C
90	A-	70	C-
87	B+	67	D+
84	B	64	D
80	B-	60	D-
77	C+	<60	E

HW and Quizzes: The students will have weekly homework assignments. There will also be pop quizzes throughout the semester which will occur at a cadence of one every week or every two weeks.

Presentations: The students will give two individual presentations during the semester, presentation #1 and a final presentation. Presentation #1 will serve as a milestone on the way to the final presentation, and therefore they both will cover the same topic. However, the final presentation will be expected to be more polished and have more content. The topic will be chosen by the student with agreement of the instructor. It will be related to how a recent finding in neuroscience and psychology can be applied to engineering leadership. The students will be expected to perform a literature review and base their presentation on at least two peer-reviewed scientific articles.

Mid-term and final exam: The mid-term and final exam will be timed assessments covering the topics discussed during lectures.

Attendance: Attendance is required. Pop quizzes may be given at any time without prior notice. Taking notes during class will help you succeed in the exams. Furthermore, every class

period will include discussions, sometimes as a class and sometimes in small groups. The material discussed in class is fair game for the exams.

Tentative schedule:

Week 1	Course Introduction, simple brain anatomy, basic neurotransmitters, neuroplasticity
Week 2	How brains interpret information; illusions
Week 3 - 4	The art of negotiations; guest speaker #1 Topics include: Mirroring, labeling, Yes vs No, triggering words, the illusion of control, bargaining approach
Week 5-6	Crucial conversations Topics include: The cognitive work before speaking, STATE technique, exploring others' paths, how to finish, move to action.
Week 7	Guest speaker #2; Mid-term
Week 8	Fall Break
Week 9 – 10	The emotional life of your brain, Guest speaker #3 Topics include: Emotional styles, resilience, outlook, social intuition, self-awareness, sensitivity to context, attention
Week 11	Mindfulness
Week 12 - 14	Your brain at work, Guest speaker #4 Topics include: Mental overwhelm, juggling multiple tasks at once, distractions, zone of peak performance, roadblocks
Week 15	Team project presentations, Final Exam Review

University Policies

1. **The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability & Access, 65 Student Services Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability & Access.

In compliance with ADA requirements, some students may need to record course content. Any recordings of course content are for personal use only, should not be shared, and should not be made publicly available. In addition, recordings should be destroyed at the conclusion of the course.

2. **University Safety Statement.** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu>

3. **Addressing Sexual Misconduct.** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 383 South University Street, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).
 - a. **Lauren's Promise:** Lauren's Promise is a vow that anyone – faculty, staff, students, parents, and community members – can take to indicate to others that they represent a safe haven for sharing incidents of sexual assault, domestic violence, or stalking. Anyone who makes Lauren's Promise vows to: 1.) listen to and believe those individuals who are being threatened or experiencing sexual assault, dating violence or stalking; 2.) represent a safe haven for sharing incidents of sexual assault, domestic violence, or stalking; and 3.) change campus culture that responds poorly to dating violence and stalking. By making Lauren's Promise, individuals are helping to change campus cultures that respond poorly to dating violence and stalking throughout the nation.
4. **Academic Misconduct Statement.** It is expected that students adhere to University of Utah policies regarding academic honesty, including but not limited to refraining from cheating, plagiarizing, misrepresenting one's work, and/or inappropriately collaborating. This includes the use of generative artificial intelligence (AI) tools without citation, documentation, or authorization. Students are expected to adhere to the prescribed professional and ethical standards of the profession/discipline for which they are preparing. Any student who engages in academic dishonesty or who violates the professional and ethical standards for their profession/discipline may be subject to academic sanctions as per the University of Utah's Student Code: <https://regulations.utah.edu/academics/6-410.php>
5. **Drop/Withdrawal Policies.** Students may drop a course within the first two weeks of a given semester without any penalties. Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A "W" grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade "W" is not used in calculating the student's GPA. For deadlines to withdraw from full-term, first, and second session classes, see the U's Academic Calendar.
6. Other important information to consider including:
 - a. Student Code: <http://regulations.utah.edu/academics/6-400.php>
 - b. Accommodation Policy (see Section Q): <http://regulations.utah.edu/academics/6-100.php>
7. **Supports for Students.** Your success at the University of Utah is important to all of us here! If you feel like you need extra support in academics, overcoming personal difficulties, or finding community, the U is here for you. Please refer to the [Student Support Services page for the U](#) for updated information.
8. **Basic Needs Student Support Statement.** Success at The University of Utah includes learning about and using available resources. The [Basic Needs Collective](#) (BNC) is a coordinated resource referral hub. They educate about and connect students to campus and community resources to help

them meet their basic needs. As a central location for resource referrals related to food, housing, health insurance, managing finances, legal services, mental health, etc., any student experiencing difficulty with basic needs is encouraged to contact them. Drop into their office located in the Union basement or schedule with them online for an in-person or virtual visit through their webpage: <https://basicneeds.utah.edu/>.

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