Intra and Interpersonal Skills for STEM and Medical Science:

A Lesson in the Medical Humanities and Social Sciences

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**Rationale**

This proposal responds to the recent call for integrating mental health resources into STEM education, highlighting the importance of teaching intrapersonal and interpersonal skills within the medical and humanities disciplines. The importance of learning intrapersonal skills is evidenced by the 2023 editorial by the American Chemistry Society’s journal ACS Polymers, titled “On the Importance of Mental Health in STEM” (Pesters, Nah, & Fu, 2023), emphasizes the prevalence of depression, anxiety, and burnout among undergraduate and graduate STEM students. Compared to non-STEM students, mental health concerns are often higher and help-seeking behavior is lower among STEM students (Danowitz & Beddoes, 2018; Lipson et al., 2019). A culture of “suffering and shared hardship” exists in some STEM programs (Godfrey & Parker, 2010), prompting calls to incorporate mental health education into STEM curricula (Pesters et al., 2023). Additionally, interpersonal communication skills are crucial in healthcare settings and many STEM professions, such as physician-patient interactions, teamwork, working relationships, and job interviews. Effective communication enhances these exchanges by facilitating information sharing, providing comfort, reducing stress, and building rapport (Floyd, 2021). Ineffective communication can lead to poor decision-making, mistrust, and social anxiety. A key component of improving interpersonal communication is enhancing emotional intelligence. Emotional intelligence, defined as the ability to perceive, understand, use, and manage emotions constructively (Brackett et al., 2004), helps students understand and manage emotions effectively in interpersonal exchanges. Aligning with the Medical and Health Humanities program goals, improving one’s intrapersonal and interpersonal skills will help enable students to improve their interpersonal exchanges.

**Lesson Details**

This includes two 20-minute lessons that focus on intrapersonal (20-minutes) and interpersonal (20-minutes) skills for the STEM and medical sciences. Each lesson has a PowerPoint presentation, suggestions for in-class activities, suggestions for assigned readings and/or out-of-class assignments, and background readings for the instructor.

**Learning Objectives**

By the end of both lessons, students will:

1. Understand the impact and prevalence of mental health symptoms among STEM students
2. Apply the three presented strategies to improve intrapersonal wellbeing (practicing mindfulness, gratitude, and self-compassion) to their lives
3. Define the four components of emotional intelligence and;
4. Demonstrate several strategies to improve emotional intelligence.

**Student Assigned Readings/Videos**

Intrapersonal Skills

Below are three TED Talks related to each of the three intrapersonal wellness skills presented in the lesson. Students and instructors may find that these TED Talks provide useful background information that may help foster in-class discussion:

1. Practicing Mindfulness
   * Andy Puddicombe: <https://www.ted.com/talks/andy_puddicombe_all_it_takes_is_10_mindful_minutes>
2. Practicing Self-Compassion
   * Kristen Neff: <https://youtu.be/IvtZBUSplr4>
3. Practicing Gratitude
   * David Steindl-Rast: <https://ed.ted.com/lessons/3f005sIG>

In addition to (or instead of) these videos, instructors may prefer to ask students to read articles highlighting the need for intrapersonal/mental health skills training among STEM students (Pesters et al., 2023; Lipson et al., 2019) and evidence supporting the use of mindfulness, self-compassion, and gratitude among undergraduate students (Konrad et al., 2023; Smeets et al., 2014; Tolcher et al., 2024). Each of these articles is described below.

Interpersonal Skills

Floyd, K. (2021) [*Interpersonal Communication*](https://www.mheducation.com/highered/product/9781260822885?cid=ppc|HE|PDP_Students_Dynamic|Google|&gad=1&gclid=Cj0KCQjwm66pBhDQARIsALIR2zAc3iMIbLYkt8epTlTmTC9RIZKoKZWQtnHd9BzSjrD0za87LHDMyk0aAgoPEALw_wcB)(4th ed.), Chapter 8 Emotions (pp. 272-278). McGraw-Hill

A scanned copy of this portion of the textbook chapter is included in the resources.

Ott, C. (nd). What is emotional intelligence? *Ohio State University Extension.*

A good summary of the four domains of emotional intelligence for students to read. The PDF document is included in the resources.

**Additional Background Reading for the Instructor**

Intrapersonal Skills

The below articles would be appropriate background reading for the instructor *and* (if desired) for students, to facilitate discussion about the importance of mental health among students and possible strategies to improve mental health. PDFs of all articles are available in the “Background Reading” folder in the Intrapersonal Skills lesson folder.

These two articles describe the importance of incorporating strategies to address mental health among STEM students specifically (Pester et al., 2023) and highlight the increased rates of mental health diagnoses and treatment among undergraduates generally (Lipson et al., 2019).

1. Pester, C. W., Noh, G., & Fu, A. (2023). On the Importance of Mental Health in STEM. *ACS polymers Au, 3*(4), 295–306. <https://doi.org/10.1021/acspolymersau.2c00062>
2. Lipson SK, Lattie EG, Eisenberg D. (2019) Increased rates of mental health service utilization by U.S. college students: 10-year population-level trends (2007–2017) *Psychiatric Services;70*(1):60–63. doi: 10.1176/appi.ps.201800332.

These three articles describe brief interventions focused on mindfulness (Konrad et al., 2023), self-compassion (Smeets et al., 2014), and gratitude (Tolcher et al., 2024) delivered to undergraduate students.

1. Konrad, A.C., Engert, V., Albrecht, R. *et al.* A multicenter feasibility study on implementing a brief mindful breathing exercise into regular university courses. *Sci Rep* 13, 7908 (2023). <https://doi.org/10.1038/s41598-023-34737-0> (Available at: <https://www.nature.com/articles/s41598-023-34737-0>)
2. Smeets, E., Neff, K., Alberts, H., & Peters, M. (2014). Meeting suffering with kindness: effects of a brief self-compassion intervention for female college students. *Journal of clinical psychology*, *70*(9), 794–807. <https://doi.org/10.1002/jclp.22076> (Available at: <https://self-compassion.org/wp-content/uploads/publications/Smeets3week.pdf>)
3. Tolcher, K., Cauble, M., & Downs, A. (2024). Evaluating the effects of gratitude interventions on college student well-being. *Journal of American college health*, *72*(5), 1321–1325. https://doi.org/10.1080/07448481.2022.2076096

Interpersonal Skills

Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and its relation to everyday behavior. Personality and Individual Differences, 36, 1387-1402. <https://doi.org/10.1016/S0191-8869(03)00236-8>

A journal article describing the impact of emotional intelligence scores on college students’ relational communication and negative behaviors. It also speaks to potential differences between men and women.

Cherniss, C., Extein, M., Goleman, D., & Weissberg, R. P. (2006). Emotional intelligence: What does the research really indicate? *Educational Psychologist, 41*(4) 239-245. <https://doi.org/10.1207/s15326985ep4104_4>

A journal article describing the adequacy of research findings for the predictive nature of emotional intelligence.

**In-Class Activities**

Intrapersonal Skills Activities (optional)

Practicing Mindfulness (8 minutes)

* *Guide your class through a 5-minute “Mindfulness of Breathing” exercise or use this* [*script*](https://www.uclahealth.org/sites/default/files/documents/Breathing%20Meditation_Transcript.pdf?f=3eb15568) *or by playing the* [*audio-guided version*](https://www.uclahealth.org/programs/uclamindful/free-guided-meditations/guided-meditations)
* *Then, spend 2-3 minutes discussing students’ experiences during the exercise.*

Practicing Self-Compassion (8 minutes)

* *Guide you class through a 5-minute “Self-Compassion Break” using* [*this script*](https://self-compassion.org/exercises/exercise-2-self-compassion-break/) *or by playing an* [*audio guided version*](https://self-compassion.org/self-compassion-practices/#guided-practices)
* *Then, spend 2-3 minutes discussing students’ experiences during the exercise.*

Practicing Gratitude

* *Ask students to write down three good things in their lives they experienced in the past 24 hours. Encourage them to do the same thing tomorrow, either on a sheet of paper, the notes app on their phone, or the free app “Grateful.” Ask them to notice how this simple practice impacts their mood.*

Interpersonal Skills

Emotional Intelligence Assessment and Discussion (10 minutes)

*Print enough copies of the* [*The Quick Emotional Intelligence Self-Assessment*](https://static1.squarespace.com/static/60ff13a7b4c26d7bf72e587a/t/62bded2900afac1c6b2f3e04/1656614185352/FCD+EI+Quick+Assessment.pdf) *for each student in class. After defining emotional intelligence and briefly describing the four domains of emotional intelligence, instruct students to fill out the assessment in class (5-minutes) and turn to a partner and (1) share one aspect of your emotional intelligence assessment that you found insightful or surprising and (2) discuss how you can apply this knowledge to your chosen field of study (5-minutes). Continue to lecture on ways to improve each domain of emotional intelligence.*

Emotional Intelligence Video (2 minutes)

*After lecturing on how to improve your social emotional awareness, watch* [*the video linked*](https://www.youtube.com/watch?v=kdhjztWMnVw) *in the PowerPoint slides to showcase an example of NURS (naming, understanding, respecting, and supporting another person’s emotional experience).*

**References**

Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and its relation to everyday behavior. *Personality and Individual Differences, 36,* 1387-1402. <https://doi.org/10.1016/S0191-8869(03)00236-8>

Cherniss, C., Extein, M., Goleman, D., & Weissberg, R. P. (2006). Emotional intelligence: What does the research really indicate? *Educational Psychologist, 41*(4) 239-245. <https://doi.org/10.1207/s15326985ep4104_4>

Floyd, K. (2021) [*Interpersonal Communication*](https://www.mheducation.com/highered/product/9781260822885?cid=ppc|HE|PDP_Students_Dynamic|Google|&gad=1&gclid=Cj0KCQjwm66pBhDQARIsALIR2zAc3iMIbLYkt8epTlTmTC9RIZKoKZWQtnHd9BzSjrD0za87LHDMyk0aAgoPEALw_wcB)(4th ed.). McGraw-Hill

Konrad, A.C., Engert, V., Albrecht, R. *et al.* A multicenter feasibility study on implementing a brief mindful breathing exercise into regular university courses. *Sci Rep* 13, 7908 (2023). <https://doi.org/10.1038/s41598-023-34737-0>

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Ott, C. (nd). [What is emotional intelligence?](https://ohio4h.org/sites/ohio4h/files/imce/Emotional%20Intelligence%20Background.pdf) *Ohio State University Extension.*

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Tolcher, K., Cauble, M., & Downs, A. (2024). Evaluating the effects of gratitude interventions on college student well-being. *Journal of American college health*, *72*(5), 1321–1325. <https://doi.org/10.1080/07448481.2022.2076096>