

LESSONS LEARNED FROM MENTORING UNDERGRADUATE AND GRADUATE STUDENTS DURING A PANDEMIC. A. G. Hayes^{1,2}, J. R. Rathbun^{2,3}, M. Moutamid², and Z. Ponterio², ¹Astronomy Department, Cornell University, Ithaca NY 14853 hayes@astro.cornell.edu, ²Cornell Center for Astrophysics and Planetary Science, Ithaca NY 14853, ³Planetary Science Institute, Tucson, AZ

Introduction: Managing and ensuring the well-being of a large (10-20 person) research group is difficult under the best of circumstances. While the composition of the group changes with time, the make-up during spring 2022 is 5 researchers / outreach staff, 3 postdocs, 5 graduate students, and 2 undergraduates. Previously, we have included up to 7 undergraduate students.

During a pandemic, the increased toll on mental well-being coupled with the logistical challenges of remote research and mentoring made ensuring the well-being of the group even more difficult. To combat these difficulties, we instituted several new (to us) policies and activities intended to increase group connectivity and strengthen the safety net available to group members. The purpose of this abstract is to share our experiences, relate lessons learned, and open a dialogue on how to develop and implement best practices for effectively managing a large research group while actively supporting the mental well-being of its members.

Even prior to the COVID-19 pandemic, concerns were being raised regarding the negative impacts that academic environments often have on the mental health of researchers and students [1,2]. The increased stresses of the pandemic have only exacerbated these concerns [3]. To provide a venue to discuss mental health related topics, we began devoting the first twenty minutes of our weekly group meeting to psychosocial support, followed by a clear transition to typical discussions of research projects. These psychosocial support sessions are conducted as confidential and non-judgmental safe spaces without a defined leadership structure. A crucial step in establishing this safe space was the willingness of senior members to embrace vulnerability and share their struggles, both personal and professional, creating a humanistic atmosphere as opposed to focusing solely on one's intellectual contributions. At first, psychosocial support topics were chosen and facilitated by senior group members who are active researchers in the IDEA community. We have now transitioned to a free-form structure where all group members are encouraged to suggest topics and sign up to lead discussions via a Google spreadsheet. To date, topics have included: coping with emotional stress; conflict resolution; COVID restrictions and safety; privilege and marginalization; and cultural changes to academia. Since starting psychosocial support, this holistic approach to team-building has led to group members

being more relaxed and engaged during academic discussions. Students, especially those just starting their programs, also appear more comfortable approaching senior group members with problems and concerns.

Another change instated at the start of the pandemic was the implementation of both group and individual mentoring contracts. These contracts are based on a template provided by Moses Milazzo [4] as part of a remote mentor training workshop he conducted for the Cornell Astronomy REU Program in Summer 2020. The contracts outline expectations and commitments from both the mentor and mentee in regard to their collaboration and work together. The group mentor contract, which is still a work in progress and under review by group members, discusses resources, mentoring philosophy, expectations for remaining a member in good standing, methods of communication, best-practices for conducting hybrid meetings, and a commitment from advisors on what will be provided to mentees. The individual mentor contracts discuss the specifics of each given project / collaboration, including meeting expectations, preferred methods of communication, milestones / deadlines, and graceful exit clauses for project termination. The contracts are kept as fluid documents that are updated regularly as progress is made and deadlines are changed. Since implementing the mentor contracts, we have seen a marked improvement in individual advisor/advisee relationships. Specifically, the contracts encouraged advisees to disclose communication preferences (e.g., text as opposed to phone calls) that they would otherwise be hesitant to discuss. By defining both the advisee and advisor's preferences up front, there are fewer miscommunications and increased trust.

One of the benefits of an academic institution is the intellectual environment and collaborative learning created by direct interaction between researchers in various stages of their careers. The remote work environment forced by the pandemic made these direct in-person interactions impossible. In an attempt to recover some of what was lost, we have enhanced the quality of our virtual research activities by inviting a small number of senior researchers from the Cornell Center for Astrophysics and Planetary Science to join our research group and share their diverse expertise. By joining the group, they provided additional mentorship for student researchers, acted as additional resources students could go to for help, and became role models for group members exploring potential career options.

In general, these senior researchers bring diverse and complimentary viewpoints to research group meetings. The overall benefits that arose from including these individuals in the group exceeded our expectations, and substantially improved the team's morale.

Finally, we also recognize the importance of the personal lives of everyone in the group. Our group is diverse, with a wide range of ages, socioeconomic status, and family situations. In order to encourage group members to better understand and engage with each other, we host ~2 group social activities each semester. While this has been difficult during the pandemic, previous activities have included curling, bowling, and local hikes. During the pandemic, we have primarily used outdoor dining facilities that met local pandemic guidelines. The group is also sensitive to the personal well-being of its members, and there is an established culture of accommodating personal needs and maintaining flexible schedules. A recent example is the creation of a lactation room in the Space Science building after a group member had a child.

While the new policies and activities discussed herein were primarily motivated by and a direct response to the difficulties created by the pandemic, their broader benefits are clear and they will remain part of our group moving forward. In fact, we would like to expand upon this abstract through conversations with other group leaders about mentoring best practices. Faculty, in particular, are typically not trained on how to mentor or run large groups and often have to learn on their own. We would like to advocate for continuing these conversations and, ideally, turn them into a white paper that could be used by faculty looking for advice regarding best practices for effectively managing a research group, mentoring its participants, and ensuring the well-being of its members.

References: [1] Shin, R.Q. (2008) *J. Multicultural Counseling Dev.*, 36 180-191 [2] Gurthie, S. et al. (2017) RAND Corporation RR-20222-RS [3] Vance et al. *PSADS White Paper 480* [4] <https://www.oncorb.net/>